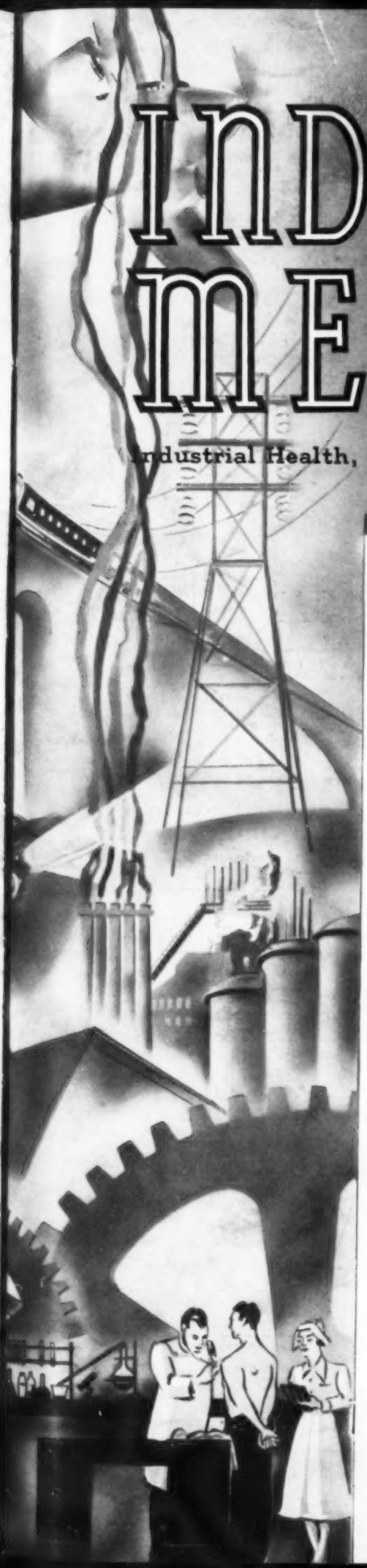

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Industrial Health, Occupational Diseases and Traumatic Surgery

September, 1942

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Dermatitis
— Occurring in a Woolen Mill —

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— What Every Doctor Should Know —

Health Examinations
— Of Industrial Executives —

Fractures of the Neck of the Femur
— Operation and Treatment —

Industrial Health for Management
— Outline of a Program —

Recommended Medical Services
— For Munitions Plants —

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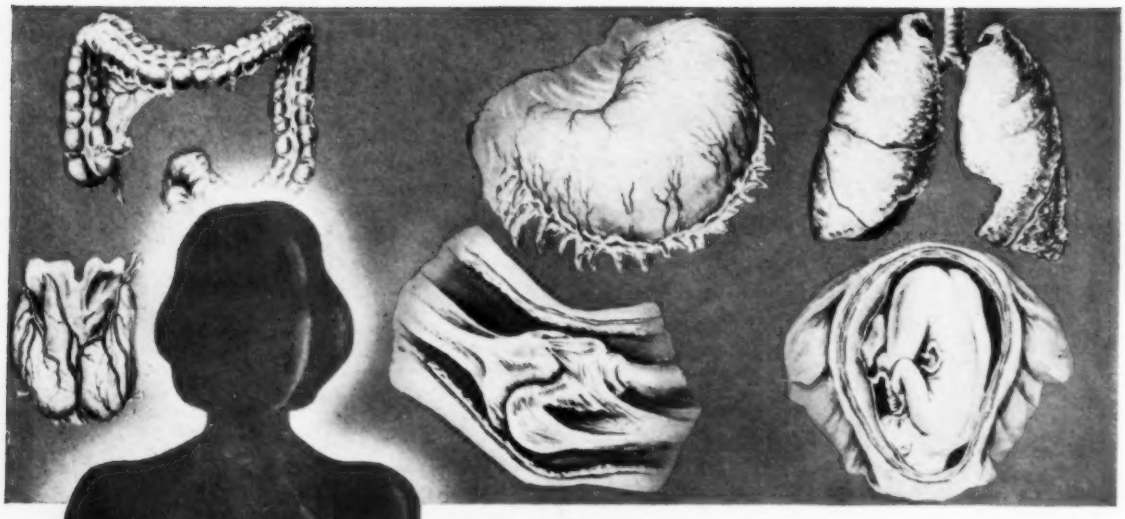
Volume 11 Number 9



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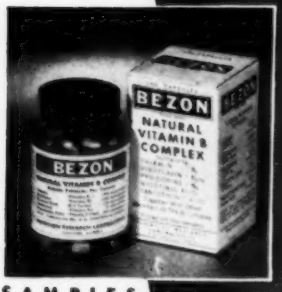

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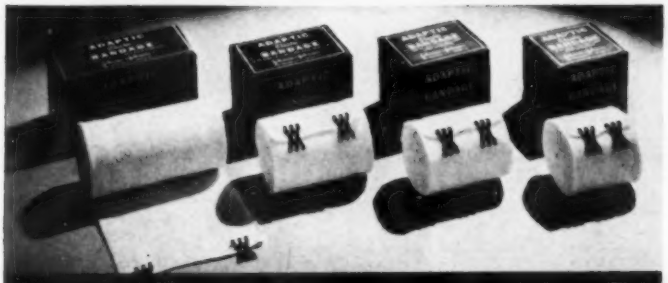

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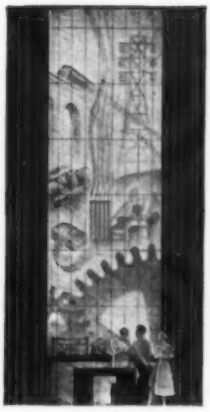

INDUSTRIAL HYGIENE
INDUSTRIAL MEDICINE
& RAILROAD SURGERY

Industrial Medicine | Volume II | SEPTEMBER, 1942 | Number 9 | Industrial Medicine

This Month

INDUSTRIAL Psychiatry in Wartime . . *Lowell S. Selling, M.D., Dr. P. H.* 407
—Employability of Certain Mental Cases

EDUCATIONAL Social Hygiene . . . . . *Thomas A. Storey, M.D.* 411
—Extension to Employees, for Control of Gonorrhea and Syphilis

AMERICAN Association of Industrial Nurses 414
—Officers and Committees

INDUSTRIAL Medicine . . . . . *John Bart Lauricella, M.D.* 415
—And the Workmen's Compensation System

ORIENTATION in Industrial Health 419
—Long Island College of Medicine

FRACTURE of the Neck of the Femur . . *James W. Davis, M.D., F.A.C.S.* 422
—Treatment

TOXIC Reactions and Death . . . . . *R. Garfield Snyder, M.D., F.A.C.P.* 425
—Following Gold Therapy in Chronic Arthritis
(With *Cornelius H. Traeger, M.D.*, and *Willard H. Squires, M.D.*)

DIAGNOSIS of Absenteeism 429

DERMATITIS . . . . . *Louis Schwartz, M.D.*, and *John E. Dunn, M.D.* 432
—Occurring in a Woolen Mill

EVOLUTION of Resuscitation 430
—History in Photo and Diorama

HEALTH Examinations . . . . . *Halstead G. Murray, M.D.* 435
—Of Executives

MAGNESIUM Burns . . . . . *J. Alfred Wilson, M.D.* 436
—Treatment
(With *Birger Egeberg, D.Sc.*)

MASSACHUSETTS Subcommittee on Public Health 437

RECOMMENDED Medical Services . . . . . *Robert H. Flinn, M.D.* 438
—For Munitions Plants

EDITORIAL:
WHAT Every Doctor Should Know 440
INDUSTRIAL Health Manual 440

AMERICAN Association of Industrial Physicians and Surgeons 442

EDITORIALS of the MONTH:
INDUSTRIAL MEDICINE for PRACTITIONERS 442
("New England Journal of Medicine")
WHAT GOES ON HERE? 442
("Occupational Hazards")

NEW BOOKS (Reviews) 444

REFERENCES on Industrial Hygiene 446

INDUSTRIAL HEALTH and DISEASE:
OUTLINE of an INDUSTRIAL HYGIENE PROGRAM 448
OUTLINE of PROCEDURE for PHYSICIANS IN INDUSTRY 454
SOUND Slide Films 455

MANUFACTURERS 456

THE "oughts" and "shoulds" of industrial health which have been so ubiquitous lately in everybody's advice to everybody else, are beginning to settle down to the level of things accomplished. Beginning, because the ears of management, to which most of this advice was really directed, are starting to listen, and—not all of those ears being "long and hairy"— gradually increasing numbers of employees are working under the advantages of medical service plans. Industrial physicians, no doubt, have been somewhat restless under the hammering of the innumerable injunctions to do what they so well know how to do, and, wherever they have been given the opportunity by management, are doing superlatively well. But the evidences here and there (of which there are plenty in these pages) that management is beginning to hear and to heed, justify the "much talk," on the basis, perhaps, that there had to be too much in order for any to become effective. An encouraging sign is that leading magazines in the mechanical field are giving the industrial health message a rating along with the technical, engineering and material values of their reader columns. This will be of some interest to the many executives who can point with pride to their own long-established medical departments, but it "ought" to be of vastly more interest to those executives who as yet haven't overheard enough of the repeated expressions of medical men to other medical men on the subject, which have been so prevalent. The extension of industrial health practices to more employees is no longer in solo part a matter of the physicians' knowing how it should be done. Instead, at present it is, and from now on it will be, a matter of managements' doing it.

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Patch, The E. L., Company 452
Gadoment
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Pelton Localite
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Pledge of Service
Poloris Company, Inc. 25
Poloris Dental Poultice
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Novalene Tablets
Resinol Chemical Co. 452
Resinol Ointment
Reynolds, R. J., Tobacco Co. 23
Camel Cigarettes
Rigidtest Products, Inc. 28
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Anusol Hemorrhoidal Suppositories
Searle, G. D., & Co. 5
Research in the Service of Medicine
Sharp & Dohme 33
Vacagen Cold Tablets
Squibb, E. R., & Son 441
Chemotherapy and Surgery
Tampax Incorporated 21
Tampax
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Wander, The, Co. 13
Ovaltine
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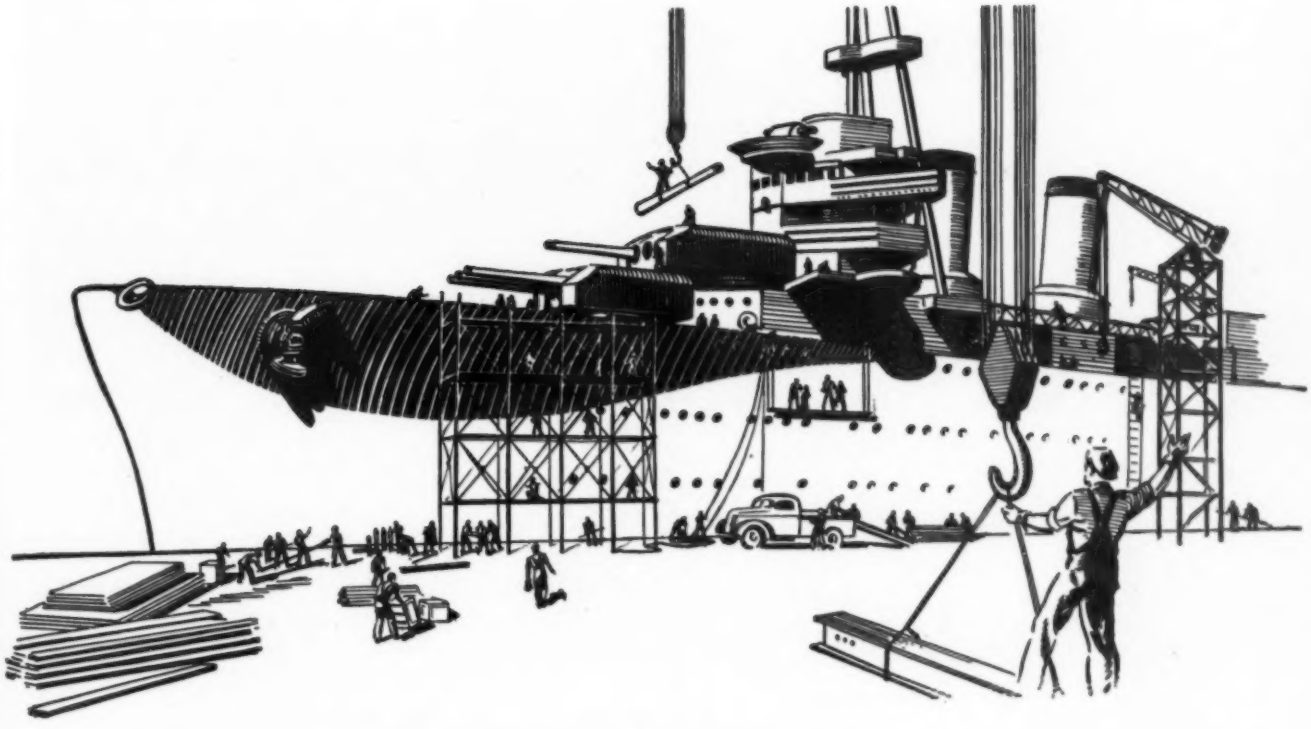

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neering and training aspects of chemical warfare as they pertain to the civilian population.

DR. RICHARD M. BRICKNER, Chairman of a New York Committee on Mental Hygiene, is mentioned, in *New York Post*, August 17, as referring to evidence of "bias" against psychiatry among Army administrative heads.

DR. LOUIS SCHWARTZ, Chief, Dermatoses Investigations Section, Division of Industrial Hygiene, National Institute of Health, conducted a course in occupational skin diseases at Bethesda, Maryland, July 28 to August 8, where leading dermatologists from many states received intensive instruction. DR. SCHWARTZ illustrated his lectures with slides and micro-photographs, many of them in color. A full six-day week of lectures—four hours a day—was followed by visits to six plants manufacturing war materials.

DR. J. B. PORTERFIELD, Director of Virginia's Bureau of Hygiene, told Roanoke Rotarians last month that industrial ill health, which costs about $70.00 per year per employee, can be drastically reduced by an intensive health program in any industry. In line with its efforts toward reduction, his Bureau has already made chest x-rays of more than 55,000 industrial employees in the state.

DR. W. E. DOYLE, Director of the Kentucky Bureau of Industrial Hygiene, announces an experimental program, sponsored by WPB and the State Board of Health, under which the Labor-Management Committees in the various industries "will determine causes of accidents and illness and, with the aid of the State Industrial Hygiene Bureau, seek to eliminate them." *Louisville Times* quotes DR. DOYLE: "In proportion to the number of plants, Kentucky has the best industrial hygiene facilities of any state."

JAMES M. DUNNING, D.D.S., Dental Director, Metropolitan Life Insurance Co., has an article in the *Journal of the American Dental Association* for August 1, 1942, on "Steps in the Initiation of an Industrial Dental Service." He concludes: "It is the hope of all who are working with the problem that the impetus to be given industrial dental service by the war effort during the next few years will result in a permanent peacetime program. No essential differences between wartime and peacetime needs are apparent at the present writing, except in the matter of urgency."

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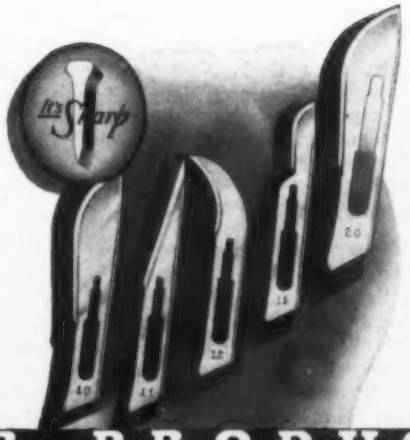

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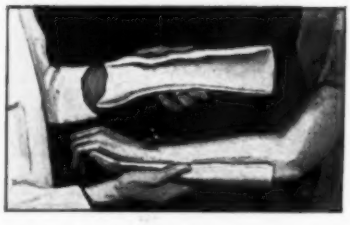

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DR. EDGAR A. VANDER VEER, of Albany, New York, New York Central surgeon, and long identified with the NEW YORK STATE SOCIETY OF INDUSTRIAL MEDICINE, has been elected Commander of the New York State Department of the United Spanish-American War Veterans.

DR. HAROLD T. CASTBERG, formerly acting Chief of the Industrial Hygiene Service in California, and MR. E. T. CHANLETT, associated with him in his West Coast assignment, are now to proceed to Oregon to institute state industrial hygiene services there, where shipyards, plane factories, lumber mills, and paper manufacturing plants make this state a vital war area. Oregon, up to the present time, has not provided industrial health protection for its workers. To complete the first unit, Oregon will underwrite the services of a chemist and an engineer, also providing office quarters and travel funds. It is expected that the new unit will begin operations early in September.

DR. HERMAN NORTON and RUTH ROSS, R.N., of the Raytheon Company, are the representatives of industrial medicine and nursing on the newly formed Sub-Committee on Industrial Hygiene of the Newton (Massachusetts) Community Council, recently organized under the chairmanship of DR. ERNEST M. MORRIS, Director of Public Health.

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DR. LUCIEN STARK, of Norfolk, Nebraska, President, 1941-42, of the AMERICAN ASSOCIATION OF RAILWAY SURGEONS, has been elected President of the newly organized American Geriatrics Society, formed by a group of doctors who, "while A.M.A. delegates were passing resolutions, took advantage of the convention gathering to hold the initial meeting." The avowed purpose of the Society is the "preventive and curative treatment of diseases of advancing age." DR. STARK was Chairman of the organization meeting, which 1200 doctors attended.

DR. T. LYLE HAZLETT, Medical Director, Westinghouse Electric & Mfg. Co., has a very interesting article on "Safeguarding Worker Health" in *Factory Management and Maintenance* for August, 1942. Written to be read by management executives, this describes, among the "many and varied" functions of the Westinghouse Medical Department, pre-employment examinations; the kind and extent of defects found, with methods of correction; placement of workers; toxicities and their control; first aid training, and nutrition—all as these and their related matters are handled by his

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FAT	3.15 Gm.	31.95 Gm.
CALCIUM	0.25 Gm.	1.05 Gm.
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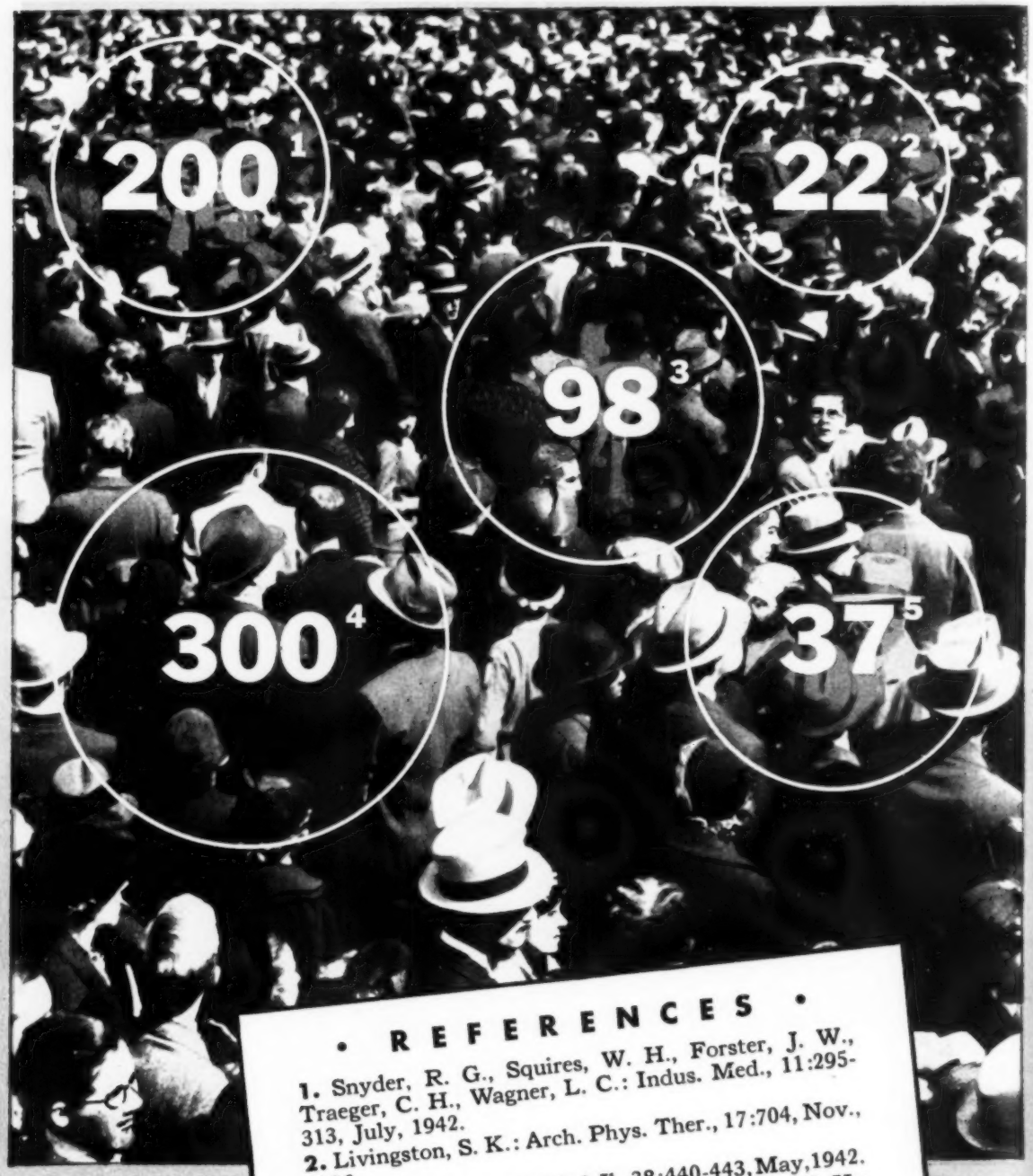

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department. He also mentions the Westinghouse separation of facilities for the medical care of women from those for the medical care of men.

DR. CADIS PHIPPS, Chairman, DR. WILLIAM E. BROWNE, Secretary, and DRS. WILLIAM A. ROGERS, JOHN G. DOWNING, ARIAL W. GEORGE and TIMOTHY LEARY, are the newly appointed Medical Advisory Committee for the Industrial Accident Board of Massachusetts.

FREDERICK J. VINTINNER, First Lieut. Sn. C., formerly Director of the Industrial Hygiene Division, New Hampshire State Board of Health, writes: "An industrial health nursing symposium was held June 27, 1942, at Concord. This was sponsored by the New Hampshire Division of Industrial Hygiene, and was attended by about 65 industrial nurses. The speakers included state health officers, industrial physicians and nurses, who discussed important phases of industrial nursing in the war effort."

THE Humm-Wadsworth Temperament Scale applied to job placement at Lockheed-Vega was interestingly described in INDUSTRIAL MEDICINE for June by DR. F. E. POOLE, Medical Director. *Readers Digest*, January, 1942, in "Fitting the Worker to the Job," says that Lockheed, using the tests provided by this scale, takes on from 500 to 1,000 new employees weekly; that its production per man is 20% above that for the industry; and that its labor turnover is but a third of the industry average.

LESLIE SILVERMAN, among the Faculty members recently promoted, is now Associate in Industrial Hygiene at Harvard University.

GENERAL

DIVISION of Industrial Health, National Institute of Health, Bethesda, Maryland, reports progress in its nation-wide survey of duties of nurses in industry. Forms submitted for analysis have been received from 26 states—327 plants, employing 802,000 workers and 1,040 nurses.

THE INDUSTRIAL dentists were to have held a meeting in Boston, August 25, but on account of the cancellation of the annual meeting of the American Dental Association, the industrial meeting also had to be postponed. Meanwhile, the Committee on Economics of the American Dental Association will continue to act as a clearing house for information, and in an advisory capacity with regard to problems of industrial dentistry. DR. R. M. WALLS, 48 East Market Street, Bethlehem, Pennsylvania, is Chairman of this committee.

THE Civil Service Commission of Los Angeles, California, announces a nation-wide competition for Public Health Engineer to be held September 25. The duties involve administration of the non-medical activities of a large public health department, a variety of studies and investigations of public health engineering problems, and other related work as required.

CONNECTICUT'S Vocational Rehabilitation Clinic is described in *The Rotarian*, August, 1942, (see "Man Salvage Clinic," *Readers Digest*, August, 1942) as facilitating the hiring of the physically handicapped at a rapid rate, the state's industries taking on each month about 4,500 men and women listed with the Workmen's Compensation Commission as having some physical disability, great or small.

THE recent joint meeting in Washington, D. C., of the National Conference of Governmental Industrial Hygienists and the Subcommittee of Industrial Health and Medicine, Health and Medical Committee, Office of Defense Health and Welfare Activities, brought out many problems that are of vital interest in the present emergency. The five major points raised by various speakers were as follows: workers, individually and collectively, should serve as the fulcrum of all efforts to improve industrial health; the effi-

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Niacin ..... 20 mg.
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B-Complex is necessary for muscular energy, muscular coordination, transferring of oxygen from the blood to the tissues, and for normal health and vigor.
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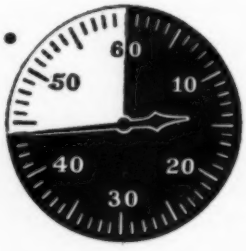
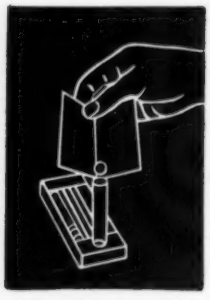
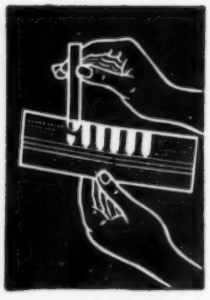


1 5 drops urine *plus* 10 drops water



2 Drop in tablet



3 Allow for reaction and compare with color scale

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cacy of medical, engineering, and chemical controls of occupational hazards has been proved; knowledge, experience, and organization are such that time-loss due to disability can be greatly reduced; threats to the health of war workers have increased, in many parts of the country, to a critical, or even desperate, stage; and to meet this emergency—that is, to avert disaster and to establish a condition of vigorous health among all workers—all the facilities for prevention and restoration must be expanded.

—*New England J. Med.*

How do we compare with last year as to lost-time accidents? There were 401 last year as compared with 468 this year for the same period. But, because of a 31% increase in hours of exposure there actually is a reduction in accident frequency of 12% this year over last year. There were three fatalities during the first six months of last year, as compared with five this year. Accidents causing injuries to fingers comprise nearly 25% of the total number of accidents, while last year this figure was 22%. Eye injuries are down to 5% of the total as against last year's 8.7%. Toe injuries are up to 9.2% of the total, while last year they were down to 7%.

—T. Lyle Hazlett, M.D., Medical Director, in Westinghouse *Safety News*, August, 1942.

McGill Manufacturing Company, Valparaiso, Indiana, made vitamins available to its 250 employees in 1940. The first year there was no record of results, but employees' comments were all favorable, some taking the capsules home for their families. In September, 1941, employment doubled, including about 50 women. A more expensive capsule was adopted, containing vitamins A, B_1, C, D, and G. The system of distribution from a dispenser at each drinking fountain was continued. Thereafter Safety Director Field Crosby kept a count of absenteeism. Analysis revealed that those who were off owing to illness either had not taken the capsules at all or had taken them very irregularly; and that production would not have been what it was, without the vitamin capsules. Officials favor continuing them.

A record number of claims for workmen's compensation in 1942 is forecast by an 18% increase in claims filed in the first six months of this year compared with the same period of 1941. With 149,642 claims received by the Commission from January 1 to June 30, the record claims total of 286,010 established in 1941 will probably be surpassed, as statistics show peak "injury months" usually are in the fall of the year.

—*Ohio State M. J.*, August, 1942.

Massachusetts and many other states are conducting educational campaigns among industrial leaders in the importance of proper meals. Improved facilities in factory kitchens or canteens where at least one good meal a day may be procured, education among the earners and their families in the proper selection, preparation and serving of balanced diets, and the necessity for protective foods are the chief points of these drives.

—Forrest Williams, in *Peoria (Illinois) Star*, July 20, 1942.

Before Pearl Harbor Boeing employed no women, for flying fortresses with their 104 feet wing spread are massive mechanisms. But by May it was hiring 10 women to every man. That month alone it hired over 1,700 women. Now 26% of its employees are women, a proportion matched by no other aircraft company.

—*Chicago Tribune*, August 19, 1942.

Division of Industrial Hygiene, National Institute of Health, U. S. Public Health Service, has issued a complete list, to December 31, 1941, of publications of the Division of Industrial Hygiene, and U. S. Public Health Service publications on industrial hygiene subjects. The work, mimeographed, contains 74 pages and nearly a thousand references.

Emergency Medical Services

All industrial plants are expected to provide medical services and first aid equipment within the plant for the care of the injured. In the event of enemy action directed against such industrial plants, the physicians, nurses, and first aid detachments within the plants may be inadequate to care for the serious injuries produced by high explosives or incendiaries. It is the recommendation of the U. S. Office of Civilian Defense that each industrial plant,

WOUND INFECTION

its prevention and control

...in Compound Fractures

. . . the possibility of infection must always be considered. If it develops the result is often delayed union, non-union or chronic osteomyelitis. Prevention or control of infection is therefore of paramount importance.

The literature indicates the value of Azochloramid as a prophylactic agent in such cases.

In a paper entitled "Prophylaxis Against Infection in Compound Fractures" (Clin. Med. & Surg., Vol. 44, No. 3, pp. 117-119) the author reports "For the after care of these wounds I have been using . . . Azochloramid in Triacetin 1:500. This has proved to be non-irritating to the tissues, general in its bactericidal action and active in the presence of organic matter. Moreover, it is sufficiently stable so that, for prophylaxis, dressings once daily are adequate."

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in addition to providing its own medical staff and first aid equipment, should plan in collaboration with the Chief of Emergency Medical Services of the locality for (1) services of ambulances and Emergency Medical Field Units when needed; (2) available beds at one or more hospitals to which the severe casualties may be transported; (3) the establishment of a Casualty Station of the Emergency Medical Service within a short distance of the plant; and (4) obtaining the services of Emergency Medical Field Units if needed to supplement the plant medical service during an emergency. In view of the fact that enemy action against industrial plants may be coincidental with widespread damage to the adjacent community, the mobilization of civilian medical resources during an emergency will be accomplished through the Commander of the Citizens' Defense Corps.

—O. C. D. Medical Division Memorandum, July 15, 1942.

Benzol Exposure

BECAUSE of its physical and chemical characteristics, benzol is one of the best solvents from the industrial point of view. From the standpoint of health, however, it is one of the most dangerous to use, since it is likely to cause disorders of the blood-forming organs. Recent studies by several investigators have done much to show how protean are the early manifestations of the action of small amounts of benzol on the body. Most industrial workers inhale the fumes of benzol, and are chronically poisoned by this method, rather than through skin absorption. Evidence of benzol exposure and absorption may be found by a change of the inorganic-total sulfate ratio of the urine. Bowditch and Elkins, in studying this ratio among workers exposed to benzol, found that it was lowered after exposure to benzol vapors. Although this test alone does not indicate benzol poisoning, it is a good measure of the amount of benzol absorption following exposure.

—SHERMAN S. PINTO, M.D. and MANFIELD BOWDITCH, in *New England J. Med.*; Abst. in *Digest of Treatment*, August, 1942.

Eye Problems

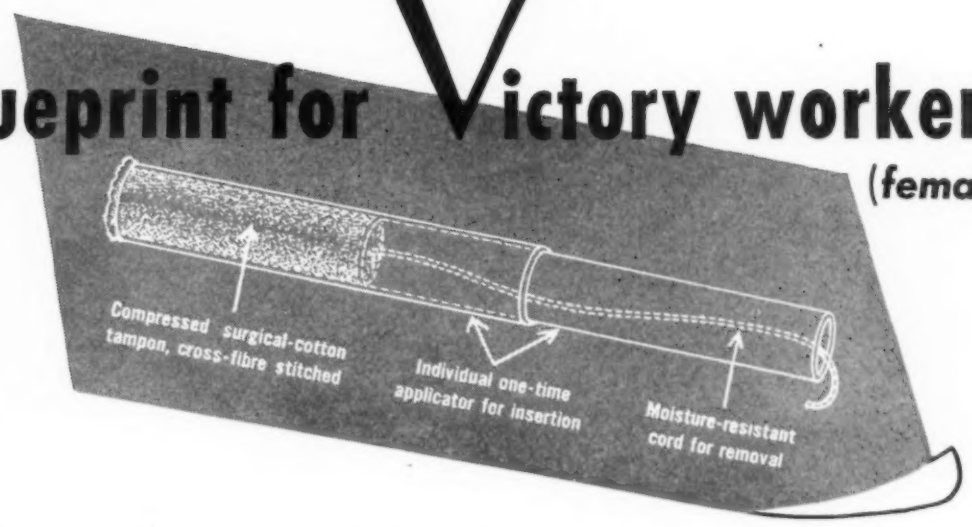
EYE problems loom large in the experience of the industrial nurse . . . certain industrial processes constitute hazards to sight either through direct accident or through indirect damage due to various systemic poisonings and diseases. Fundamentally, there is but one approach. The nurse must learn the eye problems in her plant. She does this in several ways. She keeps careful records of all accidents and illness and asks repeatedly, "How and why did this happen, and how could it be prevented from recurring?" She is aware of the factors which make for comfortable and efficient use of the eyes and is alert to conditions which lead to fatigue, strain, and accidents. She soon finds her opportunities as a teacher of health and uses all methods to present positive health instruction.

—From "The Nurse Looks at Eye Problems in Industry," by ELEANOR W. MUMFORD, R.N., in *Public Nursing*, July, 1942.

Conjunctivitis

DR. F. E. POOLE, Medical Director, Lockheed-Vega, in "Industrial Medicine in Aviation" in INDUSTRIAL MEDICINE, July, 1942, said: "Recently with the conjunctivitis epidemic that was prevalent in the shipyard industries we had about 300 cases. This presented no serious problem to us, I believe because of the fact that it was recognized early as a contagious disease and the cases were quickly isolated as they came to the attention of the first aid men. The resultant loss of time was thus kept at a minimum and no permanent disability resulted." *New York Times*, August 4, made a story out of the article on a similar outbreak by DR. FORREST E. RIEKE, of Portland, Oregon, in *J.A.M.A.*, July 18. DR. RIEKE summarizes: "An infection of the eyes of unknown causation was seen in the Oregon Shipbuilding Corporation yard at Portland, Oregon, in November and December, 1941. It was an acute conjunctivitis which involved a small percentage

Blueprint for Victory workers (female)


Compressed surgical-cotton tampon, cross-fibre stitched
Individual one-time applicator for insertion
Moisture-resistant cord for removal

UPON the physician and his nursing aids at home falls the burden of keeping Mr. America—*and particularly Miss and Mrs. America*—on the job, working for victory.

To every girl or woman in war work, their exhortation might well be—

Don't let morale ebb with the flow!

It is one of life's little ironies—that a vulval irritation can temporarily sabotage devotion to duty—that hygienic insecurity can distract patriotic effort . . . *and so unnecessarily!*

The many unique advantages that have made Tampax so highly favored for years by women in sports, in business, and in social life, can today be enjoyed with even greater expedience by the volunteer war worker, and the girl on the assembly line.

Primarily (of course), Tampax has exceptionally high absorptive capacity—it can be introduced without orificial stress—it expands flat,* providing comfort in situ—it is cross-fibre stitched against disintegration,* assuring dainty removal without probing—and it comes in three sizes* to meet individual daily needs.

But, of particular importance, its gentle intravaginal contact is free from the prospect of internal or external irritation; it does not expose the flux to odorous decomposition; and it cannot cause noticeable bulkiness. In short, it is convenient, comfortable—and confidential. The sense of freedom and poise it encourages can help keep morale at the peak during trying days when every hour counts.

Have you samples for demonstration? The coupon will see that you get them.

*Tampon features, exclusive with Tampax.

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TO POINT OUT THE HEART CASES...

There are many jobs in industry upon which men with cardio-vascular diseases should not be employed. The time to eliminate applicants for such jobs is before you hire them. With thousands of new men entering industry, physical examination becomes a real problem.

THE "SIMPLI-TROL" PORTABLE MODEL *is contained in one case 8" x 10" x 19" and weighs but 30 pounds. Mobile and Stationary models also available for Hospital and Clinical use. Any model may be arranged to record heart sounds and pulse simultaneously with the electrocardiogram. Send for literature.*

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of exposed men; was contagious; was unidentifiable as to cause by ordinary culture methods; came apparently from Hawaii; extensively inflamed only one eye; left corneal scars in from 1% to 10% of the patients; was self limited and irresponsive to treatment; spread rapidly over the United States; remains locally endemic with sporadic increases; and is assumed to be due to a virus."

More Haste, Less Speed

IT MAY be that in the future we will realize more and more the importance of a hearty laugh and its attendant chain of supporting by-products. We may eventually evaluate the true balance of spare time, call it what you will—vacation, deviation from the hum-drum path of daily work, or just plain loafing—and then recognize the fact that accomplishment will be measured by such standards rather than by long hours of drudgery amid tobacco ashes, empty coffee pots, and, in some cases, empty flasks.

—E. FORREST BOYD, M.D., in "Usefulness of Laughter," *Southwestern Med.*, July, 1942.

For Men Only

WE of the medical profession have also special need for reflection. We are continually confronted with the feminine outlook. Women run the hospitals, even insisting that we conform medical and surgical practice to their preconceived opinions. Nurses, particularly public health ones, would instruct us how to carry on our practices. Women lead campaigns to prevent tuberculosis and abolish cancer, and expect us to follow meekly at the tails of their carts. Is it any wonder, then, that we acquire feminine characteristics, and that a certain "cattiness" can sometimes be seen in the relationships of doctors to one another? For the good of their souls and the health of their suprarenals doctors should welcome the prospects of military service, instead of retreating behind the protection of more or less evident rationalizations.

—From "War and the Suprarenals," by W. G. RICHARDS, M.D., in *Rocky Mountain Med. J.*, August, 1942.

Reprints

SEVERAL recent letters have been rather scornful of the physician who sends out unsolicited reprints. But there is one aspect to the question that I feel makes this practice valuable. Most doctors subscribe to only two or three medical publications. The limitations of time and money preclude, for most of us, a very large investment in periodicals. I am aware that there are a great number of articles published which are foreign to my specialty but which would interest me greatly—if they were only called promptly to my attention. This need is by no means met by the over-concise abstracts often published months later. Speaking for myself, I am almost always grateful when men who publish articles go to the expense of sharing the results of their studies with me. I am sure that in the aggregate I am a great deal more helped than they are. If by any chance the quality of their work inclines me to refer patients to them or to call them into consultation, more power to these physicians. Their prestige has been well earned.

—M.D., New Jersey, in *Med. Economics.*

The Common Cold

WE CAN distinguish two kinds of colds from the clinical and bacteriologic standpoint. A primary cold is caused by a specific filterable virus, with most of the complications being caused by the ordinary catarrahl organisms, *H. influenza*, pneumococci and hemolytic streptococci. Few persons are entirely immune and the strong are attacked as well as the delicate. This type has a seasonal variation and appear in mild epidemics. Secondary colds are left as a legacy after repeated primary colds, the secondary organisms becoming established in the nasopharynx or accessory sinuses. The patient is a carrier and the "colds" are exacerbations of a persistent infection. They are much less contagious, do not occur in epidemics and, although, more prevalent at the onset of cold weather and with sudden falls of temperature, do not show the definite seasonal fluctuations. The illness begins less abruptly, the course is less sharply defined, and the cold is slower in clearing up. A treatment program

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. . . a timely protective measure

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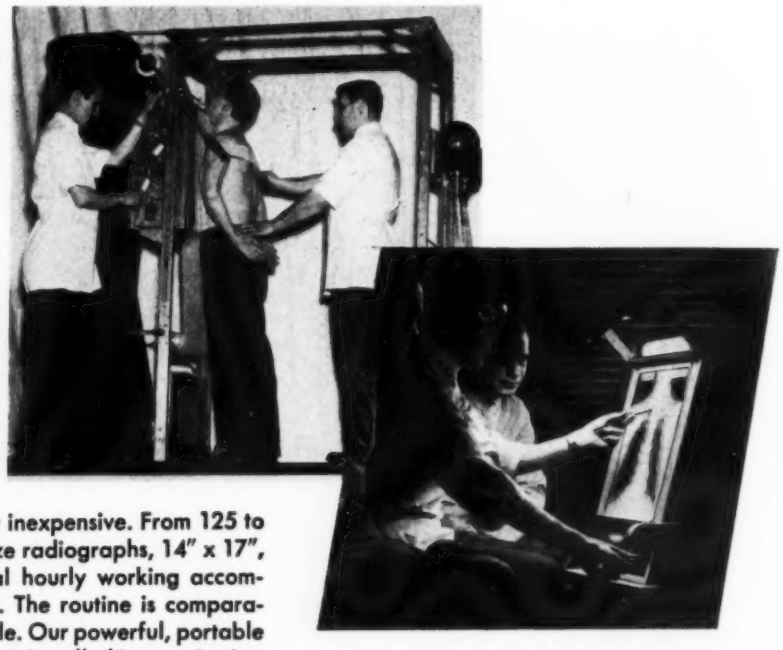

makes possible the preparation of radiographs in large scale surveys at a cost so low . . . a routine so convenient . . . requiring so little of the student's or worker's time, that mass x-ray examinations of the chest are now practical and within the financial means of every progressive institution concerned with health conservation.

This widely endorsed Paper Roll Method is diagnostically efficient . . . amazingly inexpensive. From 125 to 150 full size radiographs, 14" x 17", are normal hourly working accomplishments. The routine is comparatively simple. Our powerful, portable equipment is installed in your institution . . . exposures are made by our experienced operators . . . diagnoses are made by your medical staff.

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must first consider prophylaxis. Autogeneous vaccines are preferable, starting with a small dose, one-half to one million, with slow increases weekly working toward a final dose of at least 500 millions. Such a course should take several months, and a short course may be required subsequently from time to time. Once a cold has developed the patient would save much trouble by going to bed for 48 hours or as long as the febrile state persists. This reduces complications and lessens the risk of infection to others. Occasionally one can abort a primary cold by a fairly large (200 millions) dose of an active stock vaccine. Symptomatic relief aimed at promoting nasal drainage, together with steam inhalations must always be remembered.

—W. H. WYNN, M.D., F.R.C.P., *The Practitioner*, February, 1942; *Dig. of Treatment*, August, 1942.

Financial Aspects

THE practical application of preventive industrial medicine is reducing to a minimum the time lost from employment through illness, whether occupational or non-occupational in origin. Less than 10% of this absenteeism is caused by occupational accidents and diseases; the rest is due to afflictions common to the general population. Noteworthy gains have been made in occupational accidents and disease prevention, not only because of the legal responsibility of the employer but because there is a direct and an intangible financial loss from interrupted production. If this is true, the loss from ordinary sickness, outside of compensation costs, is nine times as great. These financial aspects are important in presenting a program to industry. One company reported recently that a proper medical service could save them $70 per employee per year. This is the language industry understands, though many employers are interested in the humanitarian aspects as well.

—ORLEN J. JOHNSON, M.D., "Nurse's Role in Industrial Health," in *Pub. Health Nursing*, August, 1942.

Hitler

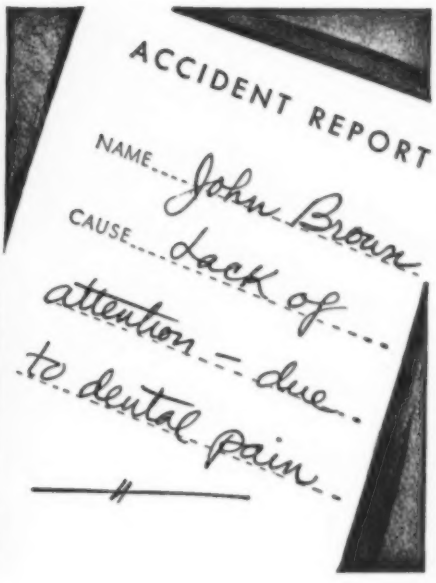
MASOCHISM is also usually associated with fixations. This is a condition where the individual actually wants punishment, sympathy, has self-pity, and gets himself involved in various difficulties, and this is unconscious. There are other fixations, such as mother and father fixations, aunt, uncle, brother, etc. But it is the "sister fixation" which carries with it the strongest guilt feeling. Sometimes this "sister fixation," with its masochism, is projected into sadism. This is a common mechanism of Hitler's and also in paranoia. The greater the guilt feeling, the greater the projection, and particularly the greater the sadism. The person who is either sadistic or masochistic, or both, is usually unconscious of these facts. Yet, these persons plan and scheme and most of their rationalizing and thinking are in the direction which will result either in masochism or in sadism. Furthermore, these people's likes and dislikes depend upon whether they will bring masochism or sadism. When one's mental mechanism functions to a small degree which produces mild masochism and sadism, it may be considered normal; when increased in degree, the individual is neurotic and when carried to extreme, the person is insane. The motivation, the dynamics, and the real causes for Hitler's killings, punishments, and destructions are unconscious. The various plans, ways and means of carrying out these sadistic punishments are conscious. One lunatic, who is surrounded by other lunatics in a trusting, busy and unconcerned sleepy world, can create terrific tragedies and punishment, with suffering for long periods, but this lunatic and his cohorts must finally lose.

—From "Is Hitler Insane?" by SAMUEL KAHN, in *Med. Rec.*, August, 1942.

Industrial Health in Minnesota

THE following recommendations are particularly interesting to Minnesota physicians, inasmuch as Minnesota's Division of Industrial Health is already well launched upon the investigation of occupational disease in Minnesota which the health service found largely lacking in most parts of the country. Several pertinent facts were brought out by this analysis. Of the 29½ million workers in 25 states,

He can't "tend to business" with a TOOTHACHE



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By interfering with concentration on the job, distracting dental pain can sabotage your plant. It impairs employee efficiency and greatly increases the possibility of material spoilage, accidents and production slowdowns.

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Physicians, dentists and nurses in the clinics of many large industrial plants regularly prescribe POLORIS for emergency dental pain. They know that its use has aided materially in reducing loss of time on the job.

For over thirty years, POLORIS Dental Poultice has been prescribed by the dental profession for the emergency relief of dental pain caused by abscess, inflammation, erupting wisdom teeth, neuralgia and other painful conditions of the teeth and gums.

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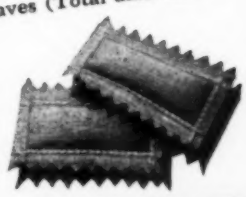

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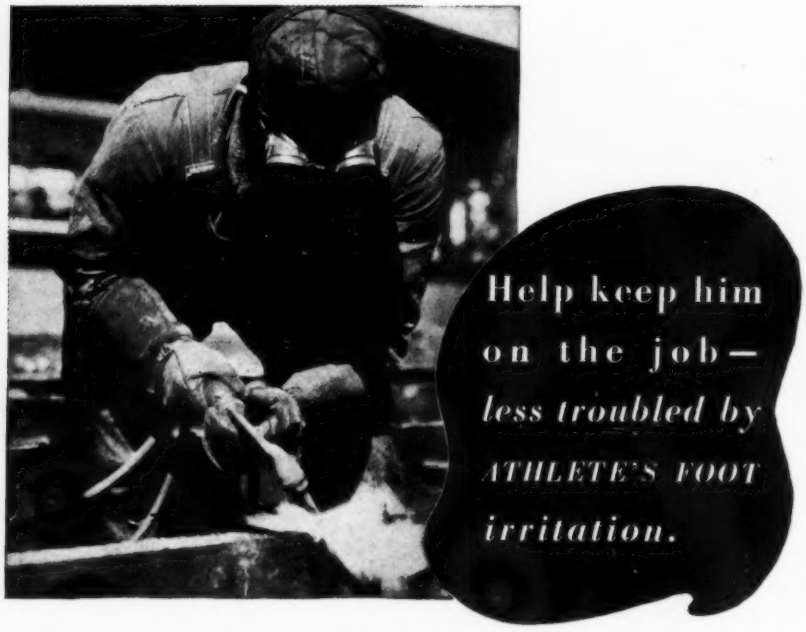

The burden of the patient with Athlete's Foot is not an easy one to bear. His mind is apt to be as much on his discomfort as on his daily work.

WHEN THIS MAN COMES TO YOU FOR TREATMENT, REMEMBER

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about one-half of whom are engaged in industries with potential health hazards, less than two million were reached through industrial hygiene services during the period of a year. With the present personnel and budgets, this represents the peak load these divisions can apparently carry. The analysis further points out that probably one-half of the employees are working under conditions that need some correction or improvement. Instead of these conditions improving they may be growing worse as the result of increased industrial production. Individual company reports have revealed, for example, that new health problems, totally unrelated to normal times, have been created and are causing bottlenecks in productions: that days lost from sickness and accidents have increased and that many instances of occupational diseases have developed as a result of use of toxic materials, because the supply of relatively safe substances is being diverted for production of war materials or cannot be replaced. These conditions clearly indicate the need for more follow-up work in those plants where recommendations for improvements have been offered. More effort in this direction will mean more compliances. Experience has shown that industry is more likely to cooperate if convinced of the need for such improvements and assured of the interest and determination on the part of the government agency responsible to see that they are carried out. Another shortcoming in the industrial hygiene programs is investigation of occupational diseases. The analysis showed that less than 4% of the investigations were made for this reason. The divisions can do much not only in stimulating such investigations but also in sponsoring and inaugurating the uniform reporting of occupational disease. In addition there is the problem of absenteeism reporting from all disabilities, an activity that is still unexplored. Industry is not fully aware of the importance of such statistics in determining the nature and extent of its health problems. In concentrating on the vital necessity of speeding up production, it is likely to overlook the somewhat obscure factor of lost time from sickness as a cause of impeded production. The divisions can sponsor and stimulate absenteeism reporting by persuading industry to adopt systems of keeping the necessary records.

—*Minnesota Med.*, August, 1942.

Sanitation

THE State Committee recommends that general sanitation of industrial plants should be maintained and subject to frequent inspection by the medical service, the industrial engineering department, and other supervisory staff. The term sanitation includes the condition of the water supply, waste and sewage disposal, washing facilities, floors, eating, rest and dressing rooms, and the cleanliness of the building and equipment within them. The standards for industrial sanitation specified in the codes of the Department of Public Health at least should be maintained.

—*Marlboro (Massachusetts) Enterprise*, July 1, 1942.

"What Strikes?"

A LOSS of 7,176,344 man hours of work through strikes in war industries in the first half of 1942 was disclosed by the National Association of Manufacturers. Strikes in June totaled 192, against 27 in January, an increase of 611%, an association survey showed. The number of men involved in January strikes was 11,605; the loss of man hours was 369,576. Those figures are dwarfed by statistics for June showing 84,775 strikers and 2,037,224 man hours lost. The figures did not include "considerable" time lost by companies dependent upon supplies from strike bound plants. "While strikes are less frequent and involve less loss of time than in 1941, there has been an alarming increase since January," the association said. "Many of the strikes of 1942 have been jurisdictional disputes and unauthorized strikes."

—*Chicago Tribune*, August 1, 1942.

Industrial Medicine

TO MAINTAIN industrial health at a productive level is the province of industrial medicine. Industrial medicine may therefore be regarded as the science that deals with prevention, alleviation and cure of diseases that affect gainfully employed persons. It is a field of special medical interest comprising the practice of medical-department administration, medical supervision, preventive medicine, toxicology and public health within the confines of indus-

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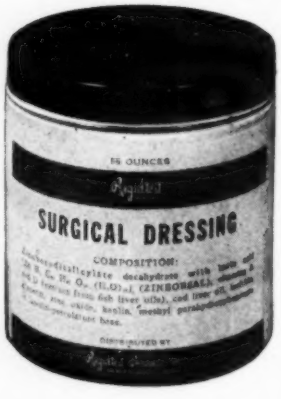

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try. Its objectives can be accomplished by the prevention of disease or injury in industry through the establishment of proper medical supervision over industrial materials, processes, environment and workers, by the health conservation of workers through physical supervision and education and by medical and surgical care to restore health and earning capacity as promptly as possible following industrial accident or disease. No revolutionary changes in well managed industrial health programs for peace are required to remodel them for production for war. Health measures that have long been recommended and used successfully in large industries should be applied with greater interest and renewed vigor and more extensively to include the small plants of 500 or less workers, where about 70% of all industrial workers are employed, and where there is good reason to believe that the individual worker is exposed to more hazards or to the same hazards in more ways than the man in the large plant, because their frequency and severity rates of accident are definitely higher.

—Dr. Daniel L. Lynch, Medical Director, New England Telephone and Telegraph Company, in "Industrial Health and the War," *New England J. Med.*, August 6, 1942.

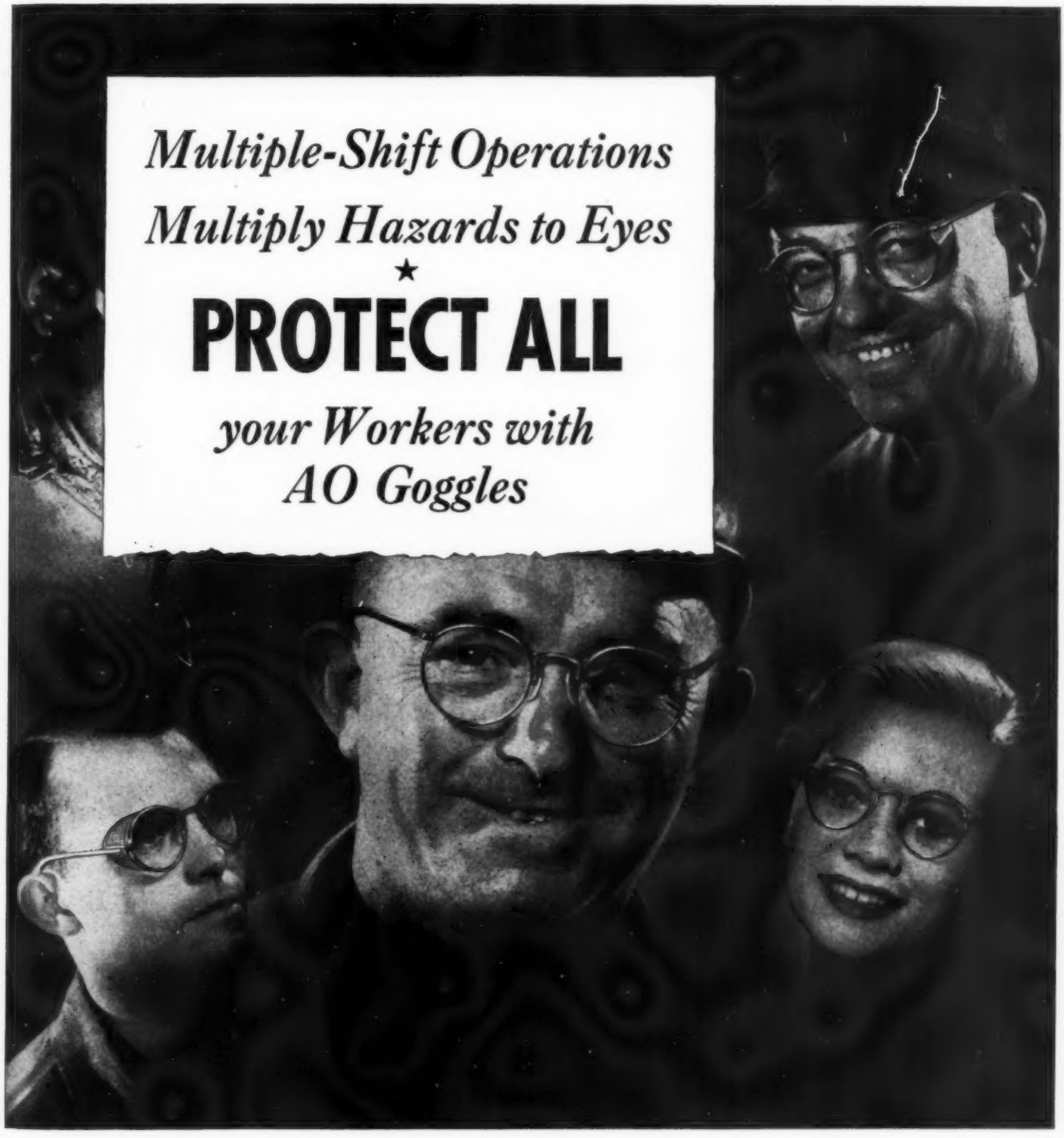
"Food Will Win the War"

The Germans of today are not going to permit the same series of events to develop during the present war. Actually while the generation that lived during the war, and the one immediately after, still show the effects of their malnutrition, the present day young German is a splendid physical specimen. Shirer contrasts the appearance of some British prisoners taken by the Germans in Belgium with the German infantry. He writes, "I could not help comparing them with those British lads. The Germans, bronzed, clean-cut physically, healthy looking as lions, chest developed and all. It was part of the unequal fight." Wilder mentions the experiences of an American woman who was caught in southern Germany when Hitler declared war. He quotes her as saying that she had never seen such men—"Tall, broad shouldered, straight backs, clear skins, lustrous hair, bright eyes"—they must have looked like young Vikings. It is said that this physical development of the young Germans has in good part been the result of the Germans' emphasizing the science of nutrition. The first 10 years after the war the rejections of the German army were high as has been our experience with the Selective Service but they, the German youths, since then have been put on a diet which is adequate in every respect. The Germans have made use of every bit of food material that contains minerals and vitamins, as well as calories, but the first two elements have been particularly accentuated and stressed. The Germans are not only using all their available food material but also they are making use particularly of synthetics as well as those things which are considered waste products, in order to obtain additional minerals and vitamins. They even grind up the bones and use the powder as a supplement to the civilian and Army ration. They provide fat by collecting some 1,500,000 kilograms of kitchen waste every day to feed to hogs which in turn supply vitamin A as well as other vitamins. Their bread is made from flour of whole grains, their noodle dough is supplemented with cabbage, spinach, carrot and onion juice; vitamin C is also fed in tablet form. They are said to have manufactured as a reserve for future use 100 tons of synthetic ascorbic acid.

—J. H. Musser, M.D., "Nutrition," in *New Orleans M. & S. J.*, August, 1942.

Significance of History

History teaches us that the position of the sick man and that of the physician in society have changed a great deal in the course of time. The development of science and technology created a new medical science, very different from that of the past, highly effective, highly specialized and technical, and very costly. The same basic force, how-



Remember this: as the size of a working force increases, the possibility of eye accidents increases. Eye protection must keep step with employment. All workers, especially *new* and *inexperienced* ones should be given the right type of goggles for their work.

Put a complete eye protection program in your plant *now*. American Optical Company can help you — with a complete line of safe, comfortable goggles and cooperation to make your eye safety program effective.

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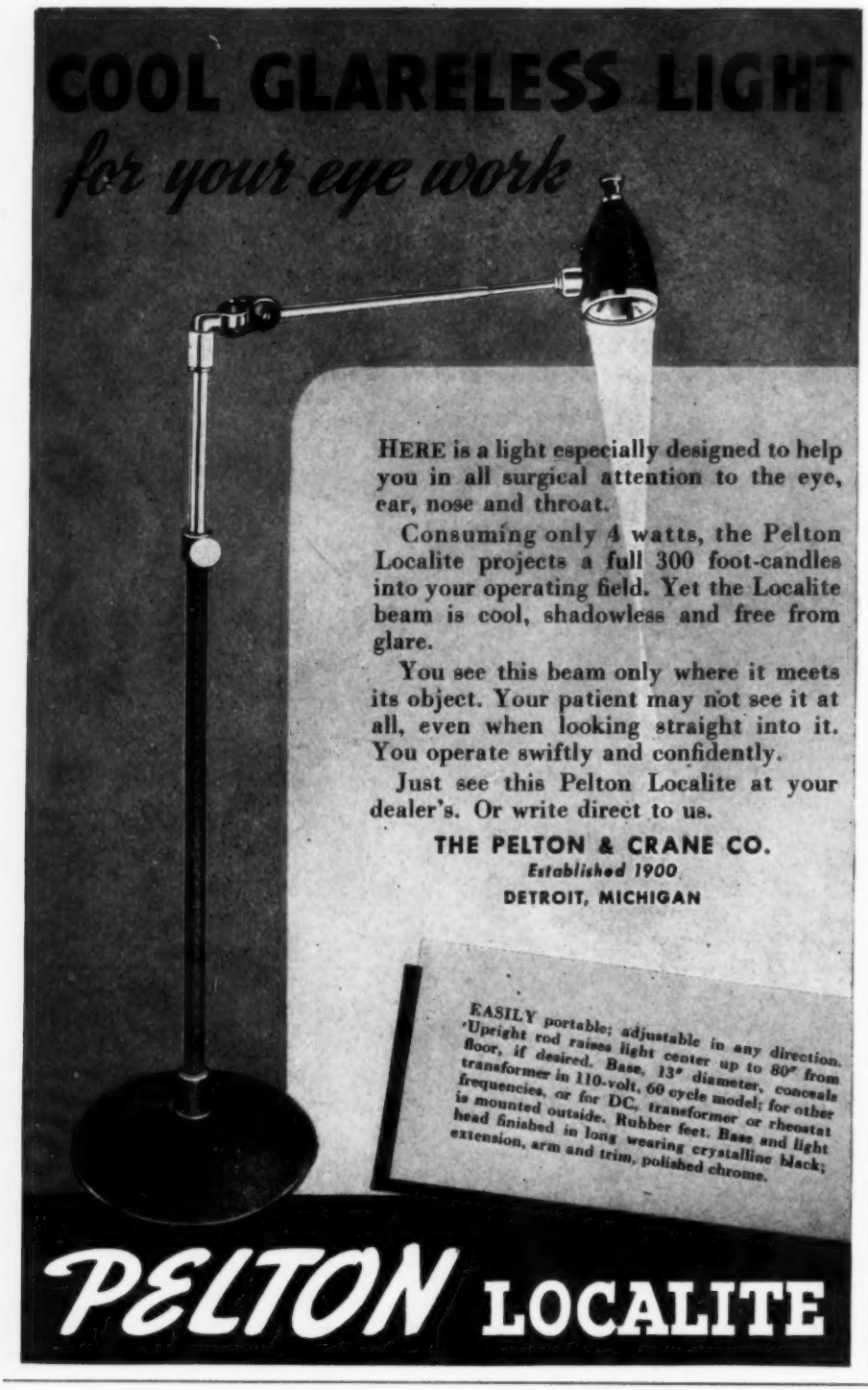
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ever, namely, the development of science and technology, resulted in the industrialization of the western world and changed the structure of society basically. Today the great majority of all gainfully employed persons consists of wage earners and salaried employees, in other words, of people who depend for an income on the labor market and have no social security. It is obvious that the application of this new medical science to a new type of society calls for new forms of medical service. If we want to act intelligently in this field also, we shall not advocate medieval forms of medical practice for a modern industrial society. We must know the facts, be fully aware of the situation that has been created by the developments of the last hundred years. It seems to me that a careful historical analysis can be very fruitful. It will help us not only to understand the past but also to plan for a better future.

—HENRY E. SIGERIST, M.D., in a Guest Editorial, *Virginia Med. Monthly*, August, 1942.

Special Training

THE physician in industry should be a specialist in his field. In addition to a good training and experience in the general practice of medicine and surgery and to good personal qualities, he should possess a knowledge of the detection and control of occupational diseases and be able to locate hazards and to study the earliest symptoms caused by them. He should become experienced in case finding in communicable disease and its control. He should possess a knowledge of administration, which includes industrial relations, because many of his problems are personal as well as medical. He should know job analysis, to assist in the proper placement of new workers and in the rehabilitation and proper placement of the injured, of the worker with arrested tuberculosis and of those handicapped by heart disease, hypertension, arthritis and other chronic diseases. He should have a knowledge of factory laws and records, of compensation laws, of plant sanitation, ventilation and illumination, of accident prevention and safety, of humanitarianism. He should have had special training quite beyond the field of private practice.

—DR. DANIEL L. LYNCH, Medical Director, New England Telephone and Telegraph Company, in "Industrial Health and the War," *New England J. Med.*, August 6, 1942.

Individualist vs. Social Worker

THE physician is an individualist, inclined to mind his own business, going about his daily routine of aiding the sick in his own way as he has learned by instruction and experience, suffering within himself the knowledge of his own mistakes and shortcomings, growing stronger by the rebuffs of fortune and economic change, and by the competition of his fellows and the criticism of those outside the profession. The social worker, dealing with economic ills and human relationships, is inclined to theories that sometimes attain magnificent scales. He deals with large groups and movements and trends; he works with other people's money and suffers little responsibility for failures and mistakes. The physician can not always administer other treatment when failure attends one plan of therapy; the social worker can always take up a new experiment to work on the body politic.

—LEWIS T. BUCKMAN, M.D., in *Pennsylvania Med. J.*, May, 1942.

Reconstruction

HAVE you tried to picture what will be the outlet of the energies of 4,000,000 young men returning to civil life from our armies after the present conflict? There will be work made by public agencies; there will be unprecedented demands for building reconstruction here and abroad; there will be an enormous increase in the commercial aviation industry; there will be enormous activity in converting war industries again to the manufacture of automobiles, refrigerators, radios, and tires; there will be an even greater expansion of motor highways and motor travel than ever before; there will be a lush field for the labor organizer; there will be a struggle for power in the high commands of labor; there will be recruiting of labor gorillas; and the same elements that

Hay Fever Menaces War Output As 2 Million in U. S. Are Affected

By GLENN SONNEDECKER.
Copyright, 1942, by Science Service.

An aerial invasion is now under way against which neither civilian defense officials nor the armed forces can protect the victims.

A blitz of pollen dropping from summer skies, exploding in [illegible] and leaving its [illegible] fever [illegible]

Working for offense, Americans cannot take time to flee to the Pacific Northwest or the few other isolated spots where hay fever is at a minimum.

Defense measures [illegible] fever [illegible] symptoms nearly as bad as the disease.

Increased [illegible]

TIME lost due to illness is the greatest saboteur of our war effort. At this time of year, the chief enemy is hay fever and complicating asthma.

During the next six weeks, until frost kills the pollen-spreading weeds and grasses, the industrial physician will be faced with the problem of relieving—in the shortest possible time—new and recurrent cases of hay fever. Results must be attained quickly and efficiently so that interference with vital war production will be kept at a minimum. The physician's immediate concern will be to return each hay fever sufferer to his work with the smallest possible loss of man hours . . . now a serious consideration in war industries.

The industrial physician will find Novalene Tablets highly effective in relieving the distressing symptoms of hay fever and asthma. A study of the formula will convince you of the therapeutic value of the carefully compounded U.S.P. ingredients in Novalene Tablets.

Prescription size packages of 25 and 100 tablets are available through your usual source of supply. Novalene Tablets may also be obtained in Hospital Packages of 500.

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AS A MEDICATED POULTICE: Antiphlogistine brings moist heat directly to the affected area for many hours, longer than ordinary preparations. That is why it is so valuable in relieving the pain, tightness and cough of chest colds, the soreness and swelling of boils, bruises and sprains.

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Antiphlogistine, because of its many practical uses, is the first thought for first aid in the Medical Departments of many industrial plants.

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Formula: Chemically pure Glycerine 45.000%, Iodine 0.01%, Boric Acid 0.1%, Salicylic Acid 0.02%, Oil of Wintergreen 0.002%, Oil of Peppermint 0.002%, Oil of Eucalyptus 0.002%, Kaolin Dehydrated 54.864%

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turned to high-jacking and gangsterism in 1919, looking again for an outlet for their energies and talents, will turn to organizing and controlling labor. That, I predict, will be the picture of events if policies continue as they have.

—From "Not All Men Think Alike," by LEWIS T. BUCKMAN, M.D., President, Medical Society of the State of Pennsylvania, in *Pittsburgh Med. Bul.*, June 13, 1942.

Milk

THE production of milk in this state from the standpoint of a safe food product has been more or less haphazard. Since milk forms a universal diet and is so easily contaminated, much attention is directed toward improving the quality. It is our understanding that in some of the defense plants each worker will be required to drink a certain amount of milk daily to overcome the effects of the chemicals used in the assembling line. The milk supplied to these workers must meet rather strict specifications relative to production, pasteurization, and distribution and the folks within the community feel that they and their children are entitled to as good a milk as is supplied defense workers. Therefore, a general program of milk sanitation is being carried on in most defense zones. It is quite a task to furnish the quantity of milk needed in these areas of the quality that is really safe. Here the sanitarian must work, first of all with the city authorities to promote such ordinances as will demand a safe and dependable milk supply and then put on a vigorous campaign among the producers, plants, and distributors to develop it. Since many persons have never been acquainted with the sanitary production of milk, this task is greater than we anticipated.

—T. A. FILIPI, Public Health Engineer, State Department of Health, in "Sanitation Activities in Defense Areas," in *Nebraska, S. M. J.*, August, 1942.

Federal Industrial Hygiene

THE Division of Industrial Hygiene has completed a survey of the dispensaries and hygiene services in Federal departments in Washington, D. C. These for the most part are established and administered by the departments and bureaus concerned. It was found that of 85 employing 155 nurses, not more than 20 were under the supervision of a physician. Functions, activities, number of personnel and physicial equipment varied widely. In no government agency was there found a comprehensive program of environmental and personal hygiene and preventive medicine such as is recommended for private industry. These findings, with recommendations for establishment of a modern employees' health program in Federal agencies, were forwarded by the Surgeon General of the U. S. Public Health Service to the Council of Personnel Administration on June 2. The over-all recommendations called for improvement in organization, personnel, utilization of space and equipment in these dispensaries with the provision that all should be operated under medical supervision. Specific recommendations included: (1) A good replacement examination, including a chest roentgenogram, a serodiagnostic test for syphilis, urinalysis and other laboratory studies as indicated. (2) Treatment of minor medical emergencies, including dental service, and referral of serious cases to private physicians. (3) Psychiatric consultation in cases of minor emotional disturbances and of serious mental illnesses. (4) Nutrition consultant services both for government cafeterias and for consultation on special individual problems, such as overweight, underweight and diabetes. (5) Elimination or control of environmental hazards, such as inadequate lighting, gross overcrowding and defective ventilation, including supervision of air conditioning. (6) Systematic reporting and recording of absenteeism, including comparison of absenteeism in the several agencies. (7) Promotion of health education. It was further recommended that the Public Health Service be given the responsibility for organizing and supervising the program in order to secure uniform services of high quality for the 250,-

—Continued on page 443.

BACTERIOLOGIC WARFARE?

• Bacteriologic warfare appears unprofitable because it is questionable whether it would add to existing problems of defense against pathogenic organisms. In the United States, for example, war production is considerably hampered by the common cold, that familiar phenomenon which deprives the nation of at least 45 million man-days of work each year—the equivalent of the full-time annual labor of 150,000 persons.[1] Colds are responsible for an estimated half of all work losses due to illness.

Fortunately, the incidence and severity of the common cold may now be reduced by means of 'Vacagen' Oral Cold Vaccine Tablets.

Since colds may be caused by viruses, bacteria, or a combination of both agents,[2] and immunologic response to the so-called cold virus is relatively transient, protective measures are directed towards active immunization against specific bacteria associated with severe types of coryza. Oral administration of the water-soluble antigenic factors of these bacteria has proved to be an effective means of establishing immunity from them.

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Each 'Vacagen' Tablet contains carefully proportioned quantities of the water-soluble antigenic derivatives of approximately 60,000 million organisms commonly associated with infections of the upper respiratory tract. The fresh antigens are rapidly frozen, dehydrated under high vacuum, and made into enteric-coated tablets for oral administration.

'Vacagen' Oral Cold Vaccine Tablets are supplied in bottles of 20, 100, 500 and 1,000.

1. Lanza, A. J.: J. A. M. A., 116:1342, March 29, 1941.
2. Zinsser, H., & Bayne-Jones, S.: A Textbook of Bacteriology, D. Appleton-Century Co., 1934.

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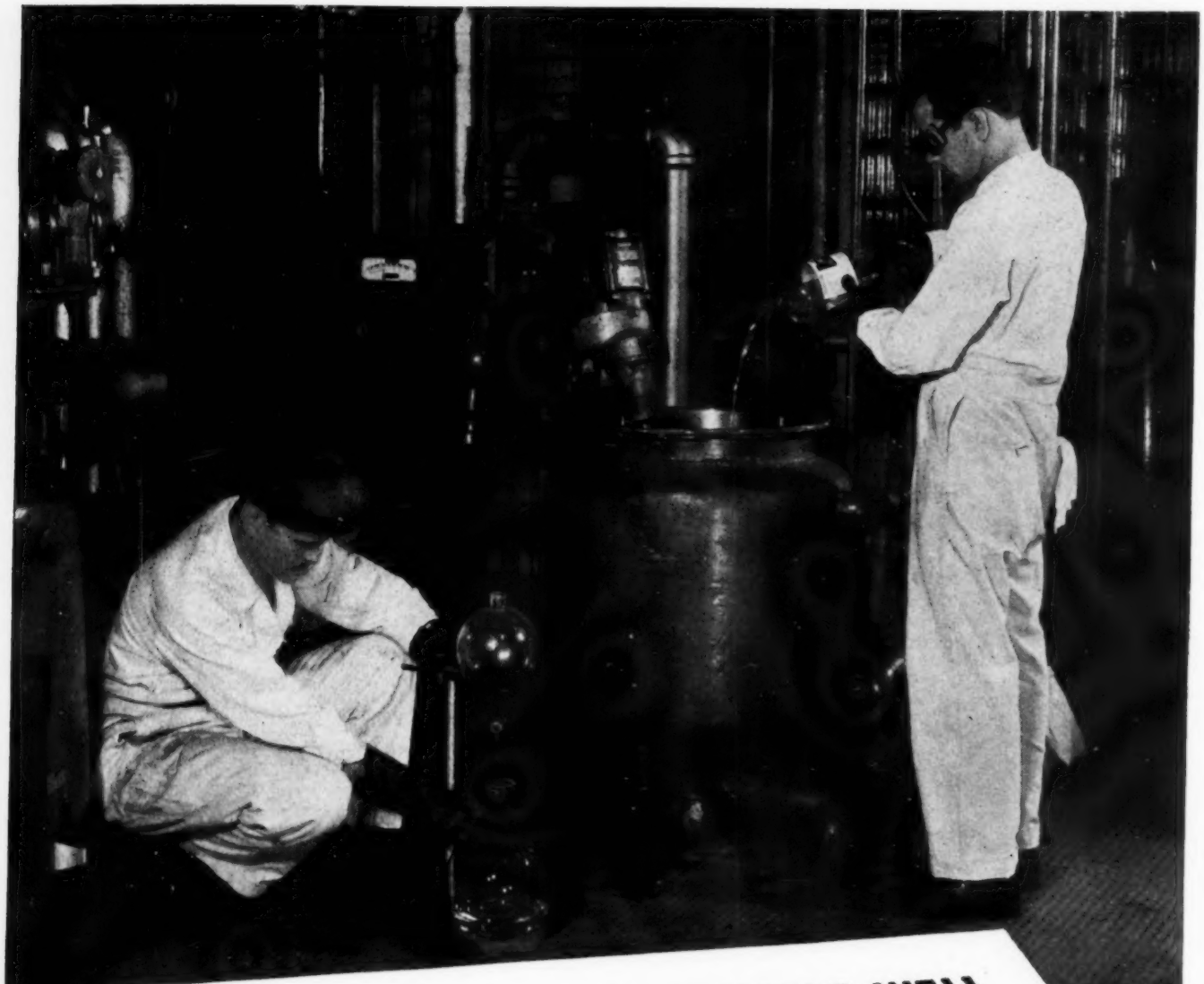

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Industrial Medicine

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With which are consolidated "The Industrial Doctor" and "International Journal of Medicine and Surgery."

The Science, the Law and the Economics of Industrial Health

Volume 11 | September, 1942 | Number 9

Industrial Psychiatry in Wartime

—Employability of Certain Mental Cases—

LOWELL S. SELLING, M.D., Ph.D., Dr.P.H.,
Detroit, Michigan

WHEN our country was preparing for war and man power was being surveyed for mobilization and to furnish personnel for the Army, echoes were heard in the background that not only would psychiatrists be called upon to aid in the proper selection of military man power but that they might be asked also to aid in the selection of industrial personnel.

Those who were talking in this vein missed an important point. The major task for psychiatry in the Army and in the Selective Service System is to cull out the psychotics, the psychopathic personalities, the neurotics and the feeble-minded. Psychiatry has not progressed so far in the armed services that it is expected to do the job that it does best in peace time, which is adjust personnel who might not be the most fitted for the job so that, in spite of their quirks and weaknesses, they might be able to do the task which is intended. With a lowering of the bars in the selection of military man power, personnel adjustment work on the part of Army psychiatrists will undoubtedly become necessary. Whether there will be psychiatrists available to do this job or not is doubtful, as this service is already overextended and few psychiatrists are equipped to do this kind of work. The few psychiatrists who have been employed in industry up to now, and those who have acted as consultants to industrial organizations, have stressed the need of solving individual problems in the plant. It has always been admitted that key men and important workers who were poorly fitted emotionally should be treated or handled in such a way by the employer so that their services will still be available for production in spite of the mental disturbance.

In peace times, particularly in times of depression, the labor pool is so deep that one can pick and choose according to his own likes and dislikes in order to find the kind of personnel that he wants for his plant. In war time the opposite is the case. No longer can the problem individuals be thrown out because they are mental problems. As a matter of fact, the Army has taken and will continue to take the best of American man power, throwing back to the occupations behind the lines those who are not considered fit for military service.

From the Psychopathic Clinic of the Recorder's Court, Series I, No. 1.

The job of industrial psychiatry in war time, then, is not one of selecting the best personnel based on employers' wishes, nor can it be called upon only to deal with key individuals. Rather, psychiatrists will be needed, if they are available, to adjust even the most lowly worker because he cannot be replaced because of the shortage of man power.

Psychiatric Service by the Plant Physician

AS THE number of psychiatrists available for such service becomes less and less, the job of doing psychiatric work will devolve upon the plant physician. In some ways he has always been the key individual in the application of medical psychology to the worker, for in most cases he has the confidence of the worker, while a so-designated psychiatrist is looked upon askance. In some plants, for instance, where there has been conflict between labor and management, the plant physician was not identified with management but was considered a neutral, readily available and sympathetic individual.

There are a number of reasons why plant physicians have not been psychiatrists. One is the fact that competent psychiatric service can only be rendered by those who are especially trained to apply the rather devious and difficult laws and techniques of psychiatry. A second reason lies in the fact that the plant physician has so many other duties and is usually so overloaded with work that he can keep himself thoroughly occupied by attending to the physical wants of the plant personnel. A third reason is found in the fact that psychiatry to some extent overlaps the accepted work carried on by the non-medical personnel division of most plants. While the medical man in the plant is admittedly able to advise whether a patient can work in heavy or light jobs, whether he is suffering from a physical disorder which makes him available for jobs requiring no rapid eye-hand coordination, nevertheless it has not come to my attention that the plant physician has been consulted in the matter of selecting jobs for those who are less *mentally* qualified than others, or in shifting a man from one job to another because of mental quirks which make him more valuable in one place than in another.

In these days we cannot expect the plant physician

to add to his already arduous duties the procedure for examining every candidate for a job psychiatrically. We can and must expect, however, that certain psychiatric aspects of the plant physician's job should not be neglected. There are two aspects of this work which are closely allied to the plant physician's regular occupation. The first is the selection of personnel, and the second is the consultation with the personnel department about readjustment of problem individuals. One very important part of the selection procedure is the decision as to whether a man can go back to work after he has been in a mental hospital and whether to return those cases to work who have shown some mental symptoms. In the past they have usually not been accepted except in large and liberal-minded plants. Today it will probably be necessary to welcome with open arms those who are mentally sick, except those who are likely to do damage to machinery or to individuals in the plant or to plant morale, and those who are not likely to commit suicide or become so preoccupied in their own mental symptoms that their services are worth nothing to the plant.

The Brief Industrial Psychiatric Survey

THE NEED for a careful examination at the time the man is taken into the plant is no less necessary in the case of those who are mentally deranged than in the case of those who are physically deranged. An acceptably thorough psychiatric examination is impossible. Such an examination cannot be boiled down to its efficient elements the way a good physical can be. In the case of the physical, for instance, the plant physician may decide to do no auscultation but may base his whole judgment about the man's chest condition on the result of the chest x-ray plates. In psychiatry there is no part of the routine that can be dropped out and yet leave the physician or psychiatrist with a comprehensive and entirely safe knowledge of the patient's potentialities. The dangers of an inadequate psychiatric examination, it must be admitted, are no greater and may be somewhat less than the situation arising from the present system of giving no psychiatric examination at all.

I can herewith make some suggestions that could be carried out by the plant physician in order to eliminate the most dangerous individuals. Four different aspects of mental disease bear the most watching: feeble-mindedness, the neuroses, the psychoses and the personality maladjustments. The first aspect is that of feeble-mindedness, i.e., the condition when the worker's native endowment is not up to average to adopt and comprehend.

Feeble-mindedness

I BELIEVE that it is possible for a plant to have a small application form with one or two questions which the man must answer which the average individual under a mental age of nine years would have difficulty in answering. Illiteracy in a normal prospect must be carefully guarded against, and language handicaps often cause the unskilled to interpret poor responses to questions as indications of feeble-mindedness rather than lack of schooling and lack of opportunity to learn the language. Plant physicians are thoroughly acquainted with this situation. Day after day, even in boom times, they have laborers come before them who can hardly respond to the instructions given to them but who, later on, turn out to be adequate employees. The question of feeble-mindedness must be evaluated in every one of its aspects. We must not forget that men who work very adequately in a plant year after year have been turned down in the recent induction board examinations in the Army because they were below a mental age of 10 years. These individuals are not able to use the ingenuity required in modern military warfare. If it were not so much trouble to make specific placement for them, they could be assigned to military shops, repair areas, parks and other work of this sort. They are not, because of their feeble-mindedness *per se*, unable to do good factory work.

The label of feeble-mindedness can be misused and misinterpreted. It is too bad that this is the case, for it creates a great obstruction in the utilization of manpower of a specific kind which is extremely valuable, eliminating often times the man who is able to do a routine job without building up resentment at its dullness, who will not use ingenuity which will get him in trouble by causing him to have injuries as a result of violating safety precautions because of some idea of his own. People who cannot progress beyond the fifth or sixth grade in school are mentally defective, according to standard classification, but they are valuable workers. In my opinion, nobody should be turned down for a plant job merely because of stupidity. It might be well to have an idea of how well he can do his work by watching him for a while and by finding work he can do, not distracting him and not changing him.

The use of standardized intelligence tests has taken considerable hold in industry. Lockheed-Vega, for instance, gives an Otis self-administering intelligence test to all job candidates. But the tests may be unfair: sometimes a test like the Otis fails a worker with a weak memory or emotional reactions and prevents a good employee from getting a job merely because he cannot answer the questions. Such a test does not work with illiterates, and usually the plant is unequipped with a skilled psychologist to evaluate the tests so that potential man power which would be valuable is thrown out through the mere mechanical application of an examination method which was not developed for industrial purposes.

The idiot and imbecile, however, have no place in the plant, and the physician should spend a day or two, if he ever has time, to familiarize himself with the stigmatic appearance of these very low-grade feeble-minded people.

A feeble-minded person whose reactions are complicated by delusions, hallucinations or evil thoughts, who is malignant or vicious, probably cannot be detected in a cursory examination such as he would have in passing through the processing required for admission to work in a given plant. Nevertheless, reports can quickly come back to the plant physician so that he is informed by the man's foreman that the man is a trouble maker. The fact that the man makes trouble, coupled with the physician's evaluation of his probable low mental age,

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An ordinary application form with age, address, and citizenship, if filled in competently by the worker, should indicate that he is not too defective. However, I can suggest two questions which could be added to any application card which, if answered competently in the applicant's own handwriting, would indicate a mental age of 11 or above, or, if asked verbally the questions having been asked by the examiner, would give a mental age of 10. The questions are:

1. What is the thing for you to do if the machine you are operating suddenly stops?

The acceptable answer here would be: Go to the foreman. Unacceptable answers would be: Wait until it starts, or Try and fix it.

2. Why is it necessary to give an applicant for a job in a factory a medical examination?

The acceptable answers are obvious, such as: To see if he is strong enough to do the work.

would justify referring him to a skilled expert on mental disorders if there is any particular need to keep the man on because of shortage of man power or because he has a particular skill which makes it worth while to continue to employ him.

The Neurotics

A LARGE group of problem individuals are the neurotics, mental cases who have anxieties, fears, paralysis, but no delusions or hallucinations. Many more of them are in our plants than the physician may realize. There is a good deal of absenteeism due to their hypochondriacal ideas when they feel that they are sick, although a physical examination does not reveal the presence of any disease. They are reacting to certain emotional needs that can be elicited by psychiatric examination; they want attention from their wives and families and, perhaps, if they are valued employees, they want attention from the officials of the plant. In large organizations, however, they find they cannot get this latter type of attention and often the truancy disappears.

If the mental condition becomes bad enough so that they are truant very often, they usually lose their jobs and become unemployable. Extreme cases end up on relief or receiving charitable care on the part of their families. Some who are fear-ridden and ridden with anxieties are often able to become good employees but need careful professional guidance. There is usually nothing about the psychoneuroses except the hypochondriacal types or those cases which have some simulacra of real disease which would partially incapacitate an employee or lessen his ability to work.

From my own examination of traffic offenders and those who have gotten into accidents, we find that such neurotic conditions as gun-barrel blindness, hysterical paralysis or hysterical anesthesia do not at all frequently occur in the general public. Patients of this kind are not responsible for accidents, so far as we have been able to find out, and I think that the plant physician, besides asking a few questions about the frequency of illness on the part of the man, need not be too apprehensive about the existence of psychoneuroses until he has working with him a full-time psychiatrist who can take a valuable psychoneurotic and readjust him so that he will neither slow down plant production nor have too much trouble himself. Psychoneurotics who show hate reactions should be carefully watched when they occasionally are brought to the attention of the plant doctors.

I must admit that psychoneurotics in high places in industry do exist and are common. These people are able to go to their own physicians for the type of treatment they need, and the place of the plant physician can only lie in advising them to get the kind of care they seem to demand.

Psychoses in Industry

THE problem of the psychotic workman, one who is delusion-ridden, deteriorated, or confused is somewhat different. Psychotic individuals can often be put to work. There are only two general problems which need concern us here. The first is the man who presents symptoms of a psychosis which is not so bad that he is dangerous or inadequate; the second is the cured case.

Like the feeble-minded, a classic type can be put to work doing a routine job and, in spite of the fact that he has the idea that he is a celebrity, yet he has no great antagonisms or hatreds towards others so that the existence of a psychosis does not affect his industrial adjustment.

This kind of case is exemplified by the "Queen Elizabeth" patients that we have in mental hospitals. Such a patient is the woman who believes she is Queen Elizabeth, Mary Queen of Scots, or some other great historical celebrity, expects to be called Your Majesty, and shows great fire and resentment when she is not. If these rather superficial demands are complied with she does an excellent job in the laundry, a job of course, which is out of keeping with her "regal" background, and does not hesitate at all to be put to bed in a regular ward with all the other persons. Such a patient as this might be difficult to have in a plant in the pre-war days when everything had to run as smoothly as possible, but today, if this patient has a talent which can be put to work, other workers can be instructed very simply to cooperate in handling the minor mental aberration. The patient is not dangerous and he adds his laboring contribution to those of the other workers.

The size of the plant and the diversification of its activities are probably the two greatest considerations in the matter of employing or re-employing "insane" individuals. Symptoms of insanity naturally indicate a hazard. Even the most skilled psychiatrist cannot tell whether certain mentally-ill individuals who seemingly are not dangerous may have a relapse or recrudescence of their symptoms to change the whole picture to a point of dangerousness.

The situation here, I believe, is less significant than in the case of the general population, in which many show minor signs of a psychosis for many years, are not given any attention, and then blow up. We cannot guarantee that there will never be a case of psychosis develop in a certain family nor can we guarantee that a man who shows minor symptoms of psychosis will not blow up and get in trouble in a plant. Naturally, the more psychiatric training and skill which the physician can bring to bear upon the problem of any one of these individuals, the better the guarantee that the cases will remain stable and cause little trouble.

In my opinion, the man who is in his middle decades, who has presented rather bizarre symptoms for a number of years without any enhancement of any of these symptoms, is a reasonably good risk for employment or re-employment. But there should be some outside information from an unbiased source to inform the plant physician that the man's symptoms have not gotten any worse, that he is a reasonably amiable person, that he makes no homicidal threats. He should not be so old that we can expect the complications of arteriosclerosis or senile organic changes to interfere with his mental adjustment.

Symptoms to be especially evaluated are delusions of persecution, hallucinations and irascibility. These usually indicate a need for hospital care. Grandiose ideas in the absence of neurological findings, mild memory defects and silliness seldom interfere with industrial adjustment under supervision.

The Improved or Cured Psychotic

A SECOND problem with the psychotic is what to do with the treated case. In the past it was impossible for the plant physician to know whether one of his candidates for a job had ever been in a mental hospital. This would be particularly true if there was something in the record to indicate that these mental cases showed psychotic symptoms just prior to the periods of absence from work. Nowadays with seniority, union protection for the men and enlightened industrial relations policies, the patients themselves are much less apt to try to withhold the information that they have been hospitalized.

There is a general rule that can be brought to bear upon employing the previously hospitalized case, that

is, that the responsibility for re-employment in the community always lies with the discharging officer of the hospital where the man has been. In Michigan, by law, the superintendent of the hospital discharges the patient and it is his responsibility to decide whether the man can come back into the community with a reasonable degree of safety to society; and there is a corollary to that decision, for the superintendent must decide whether the man is also able to go back to work. If he is going to be a burden to his family the hospital seldom releases him except with an express agreement that the man is not to be allowed to attempt employment, unless he is definitely able to do so.

Several types of cases who have been discharged from a hospital present only a slightly greater risk than persons in the general population who apply for jobs. In some instances there is danger of a relapse. In other instances, however, the men have been thoroughly gone over, thoroughly studied, thoroughly treated, and have had placed on their brows the psychiatrists' stamp of approval; and this is more than the average run of workers can present at the time of application for a job.

Specific Psychosis

THERE are some specific psychoses that might be considered:

1. *Paresis.* This disorder of course is due to the syphilis of the patients' nervous systems, and after they have been treated with malaria or some other form of fever treatment a reasonable number of cases become definitely employable, even in times of high discrimination.

Eloise Hospital, a local institution near Detroit which has a large psychiatric service, takes pride in bringing back cases from every "class" of paretic graduates who have been treated with malaria since the first "class" was graduated in 1926. A few examples are brought back from each year to show that, even so far back as 1926, treated patients have made a good social and industrial recovery; several members of the earlier classes, 1926 to 1930, are employed in responsible positions in industry, are even executives; they have never been in any trouble, are driving their cars safely and do not even have to come back to the hospital for a checkup.

2. *Schizophrenia.* With the treatment of schizophrenia (dementia praecox) by shock therapy, psychiatry can present a number of cases who previously were considered incurable, but who are now back on the street in an apparently normal condition. The number of these cases is not as great as those who have been treated with malaria treatment in the case of paretics, but there is a sufficient number to enable us to know that quite a few of them can go back to work and that most of them who have improved enough for hospital discharge will not get into any further trouble. Sometimes they have to be adjusted into a rather routine job because they haven't entirely gotten out of their way of day-dreaming and thinking about themselves; they have to be checked occasionally by a trained observer because they have some mild antagonisms, but they are not basically trouble makers, provided they have recovered enough to be paroled with a recommendation for employment or discharged from the mental hospital.

3. *Manic-depressive.* Manic-depressive cases usually recover spontaneously, many do not have a recurrence, a large percentage may have only one or two attacks during the whole period of their lives. One or both of these attacks may be sufficiently mild so that hospitalization has not been found necessary. Excessive over-optimism or worrying on the part of the ex-hospital case calls for a skilled check-up.

4. *Organic Cases.* I am not very optimistic about the employment of organic cases. Seniles and arteriosclerotics, although they may make a social improvement, seldom recover enough so that I would advocate their re-employment in industry at any but the simplest jobs. However, the simple senile individual who has nothing but a mild memory disorder for recent events may be placed at light work. It must not be forgotten, though, that unless his job is clearly routinized, he may forget the new instructions that he has been given and end up delivering a load of material intended for department A at department Z at the other end of the plant. However, if his road is from department A to department B daily, he is likely to become channelized so that he can do the work.

Special Placement

THE special adjustment of these individuals in their various jobs may require a degree of training on the part of the personnel department working with a consulting psychiatrist which has not been found in most plants up to the present time. Such services become more valuable as the plants are larger; in such organizations as the Ford Motor Company initial screening is not nearly so important as having the opportunity to place maladjusted, misguided, and mildly mentally sick persons in some place where they can do the work.

Even in war time, however, there should not be the tendency to consider the plant a hospital. If a man needs correction and special treatment, the plant is not the place for him to get it. The plant is a place where the recovered or static but not seriously sick person can have his talents utilized to the utmost. The difficulty in evaluating individual borderline cases will be found to be great at first.

My own experience in the Traffic Clinic where we have to decide whether a cured psychotic case could go back to the highways emphasizes this fact to me. Many patients were cured from the standpoint of being dangerous in society and yet were not safe to be on the highway because it was obvious that an emergency would overthrow their equilibrium or because the organic disease which caused psychosis impaired their mechanical efficiency.

Each case has to be taken on its own merits, but it must not be forgotten that today we are learning to utilize many more mentally sick individuals than we did before. Cases who are discharged from a hospital should bring with them a certificate from the superintendent of the hospital that they have recovered.

The Morale Aspect

EVEN cases who were detected in the plant to have mildly antagonistic tendencies can be put on routine work or on solitary work where there will be no danger that they will indoctrinate other employees. There is, of course, the danger that the deluded employee will set up disaffection, but this is disappearing rapidly since the unions as well as management recognize the need for keeping the trouble-making, maladjusted person out of the plant.

It has been brought to my attention by union leaders that persons having delusions of persecution in plants needed an examination in order to protect the union as much as management. In one case this person was definitely a labor organizer, one of those paranoid individuals whose emotional maladjustment caused him to hate management to such an extent that he

reacted in an attempt to disaffect the union to which he belonged. His symptoms were recognized by the union leaders as being the result of abnormal rather than liberal thinking, and he was hospitalized—as a result of which the relationship between the particular labor leader and the particular agent of management who brought the case to my attention was improved, and a dangerous man who might have caused plant difficulties of no mean degree was put in a position where he himself was benefited. This man's mental condition has not yet cleared up; he has improved enough so that I am sure that he can be returned to work eventually, and the management of that plant has expressed a willingness to restore him to his job as soon as I have approved him as being able to do the work and being cured of his malignant symptoms.

Conclusion

TO RECAPITULATE, I must say that ideally each plant should have a psychiatrist whose relationship to the personnel department and to the medical department is the same as that of the plant physician. In these times such an expert will be hard to get and hard to integrate. If an adequate specialist cannot be used, the plant physician must first of all eliminate the obvious lunatics; second, must know enough psychiatry so that he can cull out psychiatric cases and refer them to a consulting psychiatrist. And, third, he should realize that there are certain psychiatric cases who, because their condition is constant, are not likely to do harm and can be employed in spite of their ailment, and that there is a second group who have been treated for serious mental diseases and have recovered sufficiently to justify the physician in recommending their re-employment.

The use of psychiatry in industry is still limited, both by the psychiatrists' lack of understanding of the problems of industry and by the lack of psychiatrists who have the special talents which would make them able to take cognizance of the dual role that they might play in an industrial organization.

The plant physician, while not a psychiatrist and hence more likely to make a number of psychiatric errors, some of which might be serious, is in a position to utilize the knowledge available from this branch of the profession in a competent fashion. He is better off to use what little knowledge of mental medicine he can acquire and apply it than to ignore the whole subject in times like these when every available man must be utilized.

Educational Social Hygiene

—Extension to Industrial Employees for the Control of Gonorrhea and Syphilis—

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THE meanings of social hygiene were defined in the constitution adopted in 1914 when this Association was formed. Pertinent conferences were held in the preceding year and particularly in Buffalo during the sessions of the Fourth International Congress on School Hygiene in August, 1913. A number of organizations actively concerned in preceding years were merged into the new Association. The experiences of the leaders of these organizations were used as source material in setting forth the purposes of the Association.

Among the wise men who gave their thought and vision to the wording of the constitution were Charles W. Eliot, of Harvard University, Dr. Prince A. Morrow, of New York City, Dr. David Starr Jordan, of Stanford University, and Dr. William F. Snow, then Secretary and Executive Officer of the California State Board of Health. Dr. Snow was appointed General Director of the new organization, and has been officially connected with the Association ever since.

The constitution of the A.S.H.A. as adopted in 1914, with no subsequent amendments, states that:

"The purposes of the Association shall be: (1) to acquire and diffuse knowledge of the established principles and practices . . . which promote or give assurance of promoting social health; (2) to advocate the highest standards of private and public morality; (3) to suppress commercialized vice; (4) to organize the defenses of community by every available means, educational, sanitary or legislative against the diseases of vice; (5) to conduct on request inquiries into the present conditions of prostitution and venereal diseases in American cities and towns; (6) and to secure mutual acquaintance and cooperation among the local societies for these or similar purposes."

The wording of this constitution recognizes: "social health" as a measurement of qualities of the social life of the individual that are evident, also among other sources, in "the highest standards of private and public morality"; "commercialized vice" and "prostitution" as evidence of social disease; and "the diseases of vice" or "venereal diseases" as communicable diseases (somatic diseases) associated with the social diseases —prostitution and sex perversion.

During the past 28 years the American Social Hygiene Association has developed and vigorously pressed its various programs in fulfilment of the purposes laid down in its constitution. These activities have been carried on in times of deepest peace and under the excessive pressures of the first World War.

The foresight and wisdom of the officials of the American Social Hygiene Association led them in 1939 to measure with anxiety the probable involvement of the United States in a second World War. The Association possesses a remarkable background of practical experience gathered from its participation in the social hygiene problems of the Army, the Navy and the civilian population during the first World War. Because of this experience the Association concentrated its services in 1940 and 1941 on the social hygiene problems of our armed forces in communities adjacent to military and naval establishments and the defense industries. After December 7 these purposes of the American Social Hygiene Association were focused in terms of war. The period of preparation for total national defense passed into the stage of waging a total war. The dominent purpose of the Association became a concern with the social hygiene not only of the armed forces but also of the men and women engaged in industrial production for the implementation of a huge army fighting a war on land, in air, on sea and under sea.

The Association is now focusing its attention on the prime importance of: (1) early scientific diagnosis of syphilis and gonorrhea; (2) prevention; (3) competent adequate treatment; (4) location and proper legal, medical and societal treatment of sources of infection; (5) reduction of opportunities for infection by repression of prostitution; (6) extension of information concerning these diseases to all our men and women everywhere and particularly to those engaged in war industry production. This information has to do with these same items, namely, the nature and damages of syphilis and gonorrhea, their causes, their carrier (the prostitute and her customers), prevention, adequate treatment, and location and treatment—legal, medical and societal—of sources of infection.

The word extension in the title of this paper was deliberately chosen. It means that the social hygiene of industrial employees is the same social hygiene as that of the man (or woman) in the Army or Navy; or the man or woman in any civilian community. The avenues of approach to industrial employees for informational and educational purposes are different from those used to reach men in the Army and Navy. They differ in part from those used to reach people in civilian communities. But in purpose, pattern, and content, the educational social hygiene programs set up for war industry employees are extensions of the same programs that are in active use for the control of syphilis and gonorrhea among men and women elsewhere. The word extension here means that the same sort of educational social hygiene should go to the industrial employee as that which is going to the men and women in our armed forces and in our civilian communities—the communities in which industrial workers live.

Workers in industry have venereal diseases in about the same proportion as do the people in the region in which they work and live. If the rate for the general population about them is high, the rate for the employees who are a part of that general population will probably be high. Where the percentage is low in the community it is likely to be low among the industrial workers and their families who live in the community.

And the reasons for getting educational social hygiene programs to workers to help them control their gonorrhea and syphilis are the same as the reasons for getting such programs to people in communities and to men (and women) in the Army or the Navy. Syphilis and gonorrhea damage and destroy the health and life of the untreated infected industrial employee with as little mercy as they do untreated infected men and women anywhere else.

If we are justified in spending large sums of money for the prevention and treatment of these diseases to keep our armed forces fit and to get these men (and women) back home after the duration where they may have healthy families; it is worth just as much to the men and women employed in industry to safeguard themselves and be safeguarded from these cripplers and killers—these destroyers of health and life, not only of adults but also of children even before they are born.

This is a huge problem. Someone has estimated that it takes 18 men and women "in overalls" to supply all the essential needs of one man "in uniform." This reported proportion of 18 to 1 may or may not be accurate, but it is obvious that the total necessary support of all the men and women in our armed forces involves the services of an immensely larger number of men and women to furnish that support. It is also obvious that the strength of these men and women serving "back of the line" in war industries or in other essential occupations, depends on their health—on the bodily, mental, and social health of the individual members of this huge civilian army back of our armed forces.

It cannot be said often enough or impressively enough that victory in this war depends not only on the health, training, morale and implementation of our armed forces but also and equally upon the health, training, productivity and morale of our war industry employees and of the men and women in all other essential supporting occupations and activities.

The January, 1942, number of the *Journal of Social Hygiene* records the Acts of Congress, the official plans of the Army, the Navy and the Federal Security Agency, and the official cooperation between the State Commissioners of Health and these agencies of our national government for the control of the venereal diseases. We are officially committed to this campaign for the prevention, treatment, and control of gonorrhea and syphilis in the Army, the Navy, industry, and in all the communities of all our states. This paper is concerned with the extension of the educational phases of this campaign to industrial employers.

The experience of the American Social Hygiene Association has taught us that the avenues through which educational social hygiene may be extended to industrial employees may be classified in several groups. For a number of years, agents of the Association who have been meeting with employees, plant management, and headquarters, and with public health officials, have found that the approach may be through (1) plant facilities; (2) community facilities; (3) labor organizations; (4) courses or classes or schools that prepare prospective employees for skilled service in factories, etc.; and (5) public school and college student health programs.

This experience has taught us, too, that these educational programs should operate repeatedly and at intervals not too long apart; and that they should be guided by state and local public health departments, social hygiene associations, social hygiene sub-committees of tuberculosis and health associations, similar community health or welfare organizations, and by educational leaders prepared for service in this field.

And we have learned, too, that educational social hygiene programs should be a part of all educational programs and that no health program is complete unless it includes social hygiene.

Avenues Available for the Extension of Educational Social Hygiene to Industrial Employees:

By Way of Plant:

The Plant Physician—A majority of the large plants employ physicians to take charge of their health programs. These programs involve pre-employment examinations, frequently with routine blood tests. A lesser number require periodic examinations. All of them arrange for employees to bring their health needs to the attention of the plant physician—lacerations, contusions, fractures, maladjustments and other troubles. These relationships are rich in reasons for explanation and instruction concerning health. Thus the health examination and the health conference constitute a class meeting in hygiene; the physician as a teacher with one pupil and that pupil an interested employee. Some plant doctors prize these relationships highly. They give instruction concerning the bodily health, social health and mental health of the individual. These are the physicians who gain and hold the confidence and trust of employees and through them spread health information that reaches the whole employed group, their wives, husbands and children.

Pamphlet Racks—in waiting rooms of first aid stations, plant hospitals and clinics are regarded by plant physicians as very useful arrangements for the distribution of health information to employees. In one plant of rather more than 4,000 workers, men and women, where a good deal of care was taken to provide a variety of health pamphlets, it was reported that over 3,000 were taken by men and women "patients" a month. This distribution has the advantage of being voluntary on the part of the employees.

The Plant Nurse—in some industries develops a relationship with employees that is similar to that of the plant physician described above. We are told authoritatively that "the majority of industrial nurses serve as counsellors for all employees, men as well as women, concerning personal problems relating to health or social problems."

The First Aid Assistant—may serve as a valuable source of health information to those who learn to trust him and depend on him.

Plant Bulletin Boards—may carry health posters that convey a social hygiene message that can be read at a glance. A change of clever posters at reasonably frequent intervals attracts attention and interest and may make an impression.

Placques—in rest rooms, locker rooms, and lavatories have proved to be very useful in getting information to employees who report in consequence for medical counsel and advice, particularly in reference to the venereal diseases. Indestructible placques are being used by some Public Health Department via the venereal disease control office.

Pay Envelope-Stuffers—are regarded with favor by some plant officials and with disfavor by others. The too common experience is that they litter the streets for blocks away from the pay window. These stuffers would probably serve a useful purpose as sources of information if they were to follow as a part of a health informational program in which their use had been announced.

The Distribution of Pamphlets to Employees Going Off Duty—This plan has proved unsatisfactory in at least one instance in which the men were given pamphlets on gonorrhea and syphilis as they left the factory. Some of them became enraged because they thought they had been picked out specially as in need of such literature. Here, as with the pay envelope stuffers, a satisfactory result might have been secured if the distribution had followed some other preliminary information procedure.

The Lunchroom—This facility has disappeared in some plants. Where the lunchroom is available, it may be used for health posters, exhibits, pamphlet racks, motion pictures and short talks with questions and answers on health.

A Company Organ—often opens space for its items on social hygiene. These magazines are frequently of high artistic, literary and reportorial quality. They reach practically everybody in the plant or plants.

Employee Volunteer Clubs—commonly have committees that give attractive opportunities for the extension of educational social hygiene programs to their members. Such an educational committee may arrange for motion pictures, lectures, discussions, and the distribution of literature.

Company Voluntary Classes Preparing Employees for Skilled Services—The dangers from industrial accidents; the loss of time and even life from epidemics; the absenteeism and disabilities of occupational and non-occupational diseases such as gonorrhea and syphilis all combine to justify the inclusion of relevant instruction in a class for training in factory skills.

Employee Meetings—are sometimes sponsored by plant management for the purpose of getting health information before employees. Literature, motion pictures and discussions constitute the programs set up for such meetings. Opportunities for asking questions are given. Such meetings have proved well worth while for social hygiene instruction.

Foremen's Groups and Groups Made Up of Plant Representatives—offer opportunity for the health instruction of employee leaders that is then relayed to the employees for whom they are responsible. Social hygiene has been included.

Some corporations stimulate plans for group insurance, salary allotment insurance, plant savings opportunities, investment arrangements and benefit and pension plans for employee security that bring no direct financial profit to the company. The corporation benefits are measured in terms of employee health, morale and family happiness and security. When group insurance or other insurance is provided, the insurance company may circularize employees with health literature, including, of course, literature on the prevention and control of gonorrhea and syphilis.

COMMUNITY FACILITIES AVAILABLE FOR THE EXTENSION OF EDUCATIONAL SOCIAL HYGIENE PROGRAMS TO INDUSTRIAL EMPLOYEES FOR THE CONTROL OF GONORRHEA AND SYPHILIS.

The men and women who spend their working time on shift in plant, live and spend their off-duty time somewhere on the highway or in communities within the reach of automobiles or other conveyances. The community in which employees live becomes their community. Its facilities become their facilities. The health problems of the community become the health problems of all who live in it.

The official health departments, their health officers, divisions of social hygiene, venereal disease control officers, directors of industrial hygiene, directors of health education, etc., welfare departments, education departments, etc., of the communities or county; their social agencies and other volunteer health and welfare associations of every sort, carry on their educational programs with energy and imagination or complacently through the various informational facilities of the community. These facilities are furnished by the press, magazines, movies, discussion groups, street car posters, billboards, drugstore windows and other windows, venereal disease clinics and other clinics, medical associations, alert public-spirited private practitioners, service clubs, fraternal organizations, churches and special groups such as social hygiene associations and councils, and tuberculosis and health associations, that are coming more and more to include syphilis and gonorrhea among their planned objectives.

COMPANY-OWNED VILLAGES:

These villages offer especially good opportunities for the extension of informational social hygiene programs to the company employees who live in them. Such communities have all the facilities common to other communities. Some very effective educational social hygiene programs have been extended to employees living in company owned villages.

LOCAL LABOR ORGANIZATIONS:

Local labor organizations may furnish better avenues to reach the industrial employee than any other mentioned. The local labor leaders not infrequently arrange for meetings of their organizations for the presentation of motion pictures, talks by local health officers and other physicians, with opportunities for questions and answers, and for the distribution of informational material with follow-up programs.

Some labor organizations have set up competent health clinics, hospital insurance and medical care for their employees, furnishing them with opportunities for health examinations including tests for syphilis. These opportunities may include also the distribution of health literature.

The directors of education in certain unions are including information concerning health in their educational service to their fellow members. These educational directors have opportunities to be of powerful influence upon the health beliefs, standards and practices of union members with consequent benefit to the happiness and morale of them and their families.

In some unions the directors of welfare are alive to their opportunities to push programs of health information for the benefit of the membership as a whole. These labor leaders in some cases, like their fellow directors of education are calling attention to the needs of industrial workers for health examinations includ-

ing search for gonorrhea and syphilis, and their needs for subsequent medical care of remedial physical defects and health deficiencies.

Another labor union agency that is serving useful health purposes for union members here and there is designated as the "health" or the "medical" committee.

Occasionally union stewards are reported as serving as agents for getting information to employees. It has been suggested that the stewards might be of great help in getting social hygiene literature to their fellows.

Union bulletins and magazines are used for extending information concerning social hygiene to union members. A recent issue of *Textile Labor*, official publication of the Textile Union Workers of America, C.I.O., June, 1942, page 7, contains a powerful presentation by Surgeon-General Thomas Parran that illustrates such informational service under the title "Labor's Stake in Venereal Disease Control."

VOCATIONAL SCHOOLS, TRADE SCHOOLS, AND OTHER ORGANIZED FACILITIES FOR THE PREPARATION OF SECONDARY SCHOOL STUDENTS AND OLDER PEOPLE FOR SKILLED SERVICE IN INDUSTRY:

These schools offer opportunity for courses in industrial hygiene with content on communicable diseases including gonorrhea and syphilis. These communicable diseases are more hazardous as sources of epidemics in crowded industrial plants and in overcrowded communities than they are under normal peacetime conditions. Preparation of youth and of adults along these lines as prospective employees should reduce their losses of health, of working time, of income, and even of life.

THE REGULAR SCHOOL SYSTEM AS AN AVENUE AVAILABLE FOR THE EXTENSION OF EDUCATIONAL SOCIAL HYGIENE TO PROSPECTIVE INDUSTRIAL EMPLOYEES FOR THE PREVENTION AND CONTROL OF GONORRHEA AND SYPHILIS:

The elementary school, secondary school, college and university all possess facilities for effective education in all phases of hygiene. Existing school child and college student health services, instruction in hygiene in the class room, leadership of children and youth at play and in their physical education activities, leadership of college men and women in their physical education activities, especially in their sports and athletics with their rich opportunities for advice and guidance relative to the bodily, mental, and social maladjustment of the individual—child or youth—all combine in furnishing a total educational pressure that should help equip the high school graduate and to a much greater degree the college graduate to meet with wisdom the hazards and problems of health of whatever sort with a competent knowledge of what to do or where to go for their solution.

These graduates—secondary school or college, boys, girls, men and women—must shortly be distributed to the armed forces or to industry or to the supporting civilian population behind them. Their school and college hygiene preparation should—and could—be made effective for their achievement of health. No school health program of any level is complete or satisfactory that leaves out a consideration of a proper scientific social hygiene content.

Industrial Nursing Section

—N.O.P.H.N.—

GROUP conferences on industrial nursing were held in Chicago on Saturday and Sunday preceding the Biennial Convention of the three national nursing organizations. The conferences were unusually well attended, averaging 85 at each of the three sessions.

One of the decisions made at the business meeting of the Industrial Nursing Section was to get in touch with the American College of Surgeons in an effort to have their recommendation with regard to minimum standards for an industrial hospital modified to include the requirement of a registered nurse.

The stimulation of interest in the special problems of industrial nursing and the provision of opportunities for discussion of such problems were stated as continued objectives of the Section.

The biennial elections of the Industrial Nursing Section resulted as follows:

Chairman—MRS. CHRISTIAN SEABROOK, R.N., Chicago.
Vice-Chairman—PHOEBE BROWN, R.N., Milwaukee.
Nurse Directors—MARION G. DOWLING, R.N., Ridgefield, New Jersey; GRACE M. HEIDEL, R.N., Albany, New York; MARION LOUISE HITCHCOCK, R.N., Springfield, Massachusetts; JOANNA M. JOHNSON, R.N., Milwaukee, Wisconsin; MRS. HAZEL H. LEEDKE, R.N., Kaukauna, Wisconsin; RUTH M. SCOTT, R.N., Indianapolis, Indiana.
Non-Nurse Directors—J. J. BLOOMFIELD, Bethesda, Maryland; WILLIAM H. CAMERON, Chicago; JOSEPH M. CONWAY, Green Bay, Wisconsin; LIEUTENANT-COMMANDER LEONARD J. GOLDWATER, M.D., New York; CRIT PHARRIS, M.D., Hartford, Connecticut.

American Association of Industrial Nurses

THE organization of the AMERICAN ASSOCIATION OF INDUSTRIAL NURSES—open to all graduate registered nurses actively engaged in industrial nursing—at Philadelphia on April 19, during the Fourth Joint Conference of Industrial Nurses, was noted in "Industrial Nurse," May, 1942, in a comment by VICTORIA C. STRALKO, R.N. The complete official personnel of the new organization is as follows:

Officers:
President—MISS CATHERINE DEMPSEY, R.N., Simplex Wire & Cable Co., Cambridge, Massachusetts.
First Vice-President—MISS ELIZABETH SENNEWALD, R.N., Dolphin Jute Mills, Patterson, New Jersey.
Second Vice-President—MISS POLLY ACTON, R.N., *The New York Times*, New York.
Treasurer—MISS MARTHA PURCELL, R.N., Thompson Products, Inc., Detroit, Michigan.
Corresponding Secretary—MISS MARION DOWLING, R.N., Lowe Paper Co., Ridgefield, New Jersey.
Recording Secretary—MRS. MARION BRITTINGHAM, R.N., Cuneo Eastern Press, Philadelphia, Pennsylvania.

Membership Committee:
MRS. NANCY BOATRIGHT, R.N., Marshall Stove Co., Lewisburg, Tennessee.
MISS HELEN GILMORE, R.N., Brown Shoe Company, Charleston, Missouri.
MRS. HAZEL LEEDKE, R.N., Thilmany Pulp & Paper Company, Kaukauna, Wisconsin.
MISS PAULINE KUEHLER, R.N., Standard Oil Company, Whiting, Indiana.

Publicity Committee:
MISS E. MARIE GOTTBRATH, R.N., P. Lorillard Company, Louisville, Kentucky.
MISS MARGARET LUCAL, R.N., Ohio Rubber Co., Willoughby, Ohio.
MISS ELIZABETH ROBINSON, R.N., Owens-Illinois Glass Co., Fairmount, West Virginia.
MISS ALMA JURISCH, R.N., The Texas Co., Port Arthur, Texas.

Committee on Education:
MISS WINIFRED HARDIMAN, R.N., The Terry Steam Turbine Co., Hartford, Connecticut.
MISS VICTORIA STRALKO, R.N., Foote Brothers Gear & Machine Co., Chicago.
MISS HIELTJE WOZAK, R.N., Owens-Illinois Glass Co., Los Angeles, California.
MISS MARY LOU SCOTT, R.N., Louisville, Kentucky.
MRS. CHRISTIAN SEABROOK, R.N., Metropolitan Life Ins. Co., Chicago.

A MEETING of the new Association was held at Hotel Commodore, New York, Saturday, August 15, to consider the adoption of a Constitution and By-Laws, and to carry forward the organization's plans in general. The officers present included MISS DEMPSEY, MISS SENNEWALD, MISS ACTON, MRS. BRITTINGHAM, and MISS DOWLING.

Since 1938 an Annual Joint Conference has been held by New England, New York, Philadelphia and New Jersey industrial nurse organizations, and, early in 1941, the Detroit Industrial Nurses' Club joined this group. These Conferences will culminate in the First Annual Meeting of the AMERICAN ASSOCIATION OF INDUSTRIAL NURSES, which will be held in New York City, May 1 and 2, 1943.

Industrial Medicine

— And the Workmen's Compensation System —

JOHN BART LAURICELLA, M.D.,
Medical Director,
The State Insurance Fund,
New York

WHEN Charles Darwin was in his seventies and had retired to his country-seat, the good folk talked much and frequently about him. Some prankish boys of the neighborhood thought they would play a joke on him. They took hold of different bugs and managed to combine the body of one with the antenna of another, the wings of still another, and so on—until they had skillfully put together a weird-looking bug. They rang the Darwinian bell and the old scientist, himself, opened the door. Feigning innocence, excitement and enthusiasm at what they pretended to believe was a rare entomoligical specimen, they asked the famous man to tell them what sort of bug it was. Darwin gave it only one glance, then patted one of the boys on the shoulder and looking over his eyeglasses, said, "It is very simple, my lads. This is a humbug."

I shall not do like Darwin's young neighbors and give you a heterogenous account of the historical developments of industrial medicine and compensation insurance, but I shall outline the highlights.

Industrial medicine, in some rudimentary form or another, has been practiced ever since the dawn of civilization—if for no other reason than that of returning sick and injured workers to useful labor. We know this was the case with the ancient Egyptians in the building of their works, the majority of which have been unfortunately destroyed with the exception of some of the pyramids and obelisks. In this period we even find evidences of factory organizations—in that there were associations of many workers on a basis of labor division. The laborers were slaves, but this did not necessarily imply cruel treatment. Demosthenes' father had a knife factory, employing 30 workers. Lysias and his brother employed 120 slaves in the manufacture of shields; while from Rome we have similar accounts of slaves being employed in both the building and the manufacturing industries and receiving the necessary medical care in case they were injured in their work or through illness were unable to report for work. In addition to the medical attention, they were also provided with the economic necessities to sustain life during their period of disablement.

That famous Greek physician, scientist and philosopher, Hippocrates, who is often alluded to as the "father of medicine," was quick to recognize the field of industrial medicine. This great scientist, who was a contemporary of Socrates and Plato, was born on the island of Cos, in the Aegian Sea, about 460 B.C. In order to form a fair idea of Hippocrates' services to science and to human welfare, we must remember that when he appeared, the art of medicine had only begun to be somewhat disentangled from the mystic hocus-pocus and superstitious practices of which the priests skillfully availed themselves to satisfy their own cupidity and hold their sway over the people at large. Hippocrates was a disciple of the foremost philosophers of his century. He was gifted with very sound judgment, rare insight and profound knowledge. It did not take him long to point out that in all sciences, the experimental method proved the only one to hasten progress, and that any manner of reasoning not founded upon it proved false and arbitrary.

With respect to the structure of the human body, Hippocrates was forced to draw comparisons only with what he found through dissection to constitute the structure of animals, since custom and the superstitions of his time would not tolerate the dissection of dead humans. His writings indicate that, excepting for a fairly good knowledge of osteology, he was unfamiliar with the rest of the anatomy. He did not seem to have a very clear idea of the system of muscles; for example, when he writes of muscles he invariably uses the word "flesh." Similarly, his knowledge of the vascular system is inexact, as he does not differentiate between arteries and veins. His theory of procreation conforms to the tendency of his times; he believed that males are formed on the right side of the matrix and females on the left side.

In his chapter on pathology, he speaks rather more of what he believes to be the causes of diseased conditions than of the conditions themselves; for example, he refers to the influence of the air, of the wind, of the water courses, and of localities, in the production of pathological conditions of the body.

The doctrines of so-called crises in illnesses is attributed to the work of Hippocrates. He developed the field of dietetics and therapeutics, based upon a scientific background of trial and error. He developed new surgical procedures and paved the way for future researches in this field.

AS TO industrial medicine, Hippocrates was the first to recognize the toxic properties of lead. He reported many cases of lead colic, as it affected lead miners. Because of the lack of sanitary facilities during that period, he called attention to the hazard of the most ordinary occupations and indicated that many diseases were contracted in this way. As a prevention method, he advocated physical exercises, baths, massage and proper diet. When the miners became ill, he urged rest and suitable palliative treatment away from the place of work, which he felt was the true source of the disease.

The good work of Hippocrates dominated medical practices for over 500 years, for little is known of anyone else contributing anything further until the first century after Christ, when Pliny the Elder called attention to the dangers adherent in the handling of sulphur and zinc. In his book "Naturalis Historia" he speaks of masks made of transparent bladders, which were used by workmen in the preparation of vermillion, to protect them against lung disease due to the inhalation of this metallic dust.

The second century of our era produced Galen, the greatest doctor of antiquity after Hippocrates. He was born at Pergamus, in Asia Minor, about 130 A.D. When Galen appeared in Rome, as he often did, he

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Presented at a Meeting of the ASSOCIATION FOR ADVANCEMENT OF INDUSTRIAL MEDICINE AND SURGERY, New York.

found medical men there divided into various schools of thought—each of which strove to uphold its particular doctrine or system by all sorts of dialectic subtleties. There were those who were dogmatic, those who were empiric, or methodic, or eclectic, or episynthetic; and then there were those who belonged to the pneumatic school of thought. Galen overthrew all of these sects and upon the debris erected a well-reasoned system, which asserted itself for 13 centuries.

He believed anatomy to be the foundation of medicine. He was the first to dissect a large number of bodies, establishing the anatomy of the muscular and nervous systems, as well as the cariovascular system and the circulation of the blood. He was able to illustrate the function of muscles, as well as the blood vessels.

Although Galen was considered to be a pagan, as were most of his contemporary scientists, he is known to have recognized an omnipotent god. In his "De usu Partium," he states, "In writing these books, I compose a hymn to Him who has created us. I feel that true piety does not so much consist in sacrificing to Him hundreds of oxen . . . . as it does in recognizing and proclaiming His wisdom, His power, and His goodness."

THE real essence and vastness of Galen's contribution to industrial medicine, as stated in his "De constitutionac artis medicae," is that the object of medical science is to keep the different parts and organs of the human body in their natural and normal state and to make every effort to re-establish their function, when these parts have been impaired, or when these relationships have been disturbed.

He mentions many occupational diseases in his treatise, particularly those peculiar to miners, tanners, fullers, bearers of burdens, chemists, etc. He also describes accurately the pathology of lead poisoning. He focused much attention in this field of industrial medicine and surgery, where his teachings predominated until the latter part of the 15th century, when, owing to the large-scale manufacturing, which began about this time in Italy and France, it was necessary to develop means of protecting workmen against toxic fumes and vapors.

ONE of the most interesting characters in the history of industrial medicine to come to the forefront in the early part of the 16th century was Paracelsus. He did much research work and made many observations among the Tyrolese miners, whose phthisis he describes from a clinical point of view. He also investigated the diseases of smelters and foundry workers and attributed them to the inhalation of fumes and exhalations from the metals.

It appears that his early successes may have gone to his head somewhat for, in his later work, he acquired an arbitrary and dogmatic view. In order to understand Paracelsus properly, it is necessary to take into consideration the predominant tendency of the century in which he lived and to bear in mind that this era is famous for the sway of astrology and alchemy, for the abuse of all sorts of superstitious practices, for apparitions, spectres, ghosts and man-wolves, for the prevalence of demoniacal diseases, and, finally, for the hocus-pocus of a multitude of inspired and fanatical people, who exploited human credulity throughout all Europe, particularly Germany.

This is the background which furthered the advent of Paracelsus' system—one which struck a telling blow at Galen's. The use of slang, and of a great quantity of mystical and barbarous terms, which made a greater impression upon people the less intelligible they were, served as the instruments which rendered the success of this bold reformer possible. His philosophical and medical system is curious by virtue of its very absurdity. Here it is in brief: He attempted to tie up all of his theories of diseases with the Holy Scriptures—thereby exploiting the credulity of the people. He discounted the value of experimental research and the application of logic based on scientific deduction. His physiological theory, which is a hazy conglomeration of the most incoherent ideas, is founded on the application of the bible to the explanation of the functions of the human body. He taught that all of our vital forces emanated from the planets. The sun is related to the heart, the moon to the brain, the planet Venus to the kidneys and the organs of reproduction, etc. He taught that the body is formed by the concurrence of salt, sulphur and mercury of sidereal origin.

Paracelsus is no less absurd in his pathological theory. This time he resorts to teachings of magic; he asserts that the latter is the art of the arts; that it is from it that we must draw our knowledge of medicine. He would refer to the bible or to the use of magic, according to which better suited his convenience. In the practice of surgery, Paracelsus rejects entirely the use of cutting instruments, of caustics, or even of sutures—because he relies upon the efficacy of his arcana—his magic signs and words. This ancient invention, born of superstition and fraud, was supposed to cure nearly all ills, guarantee happiness and a life of several centuries. However, fate intervened. The abettor of so many rhapsodies and impostures experienced personally the emptiness of his own promises, for he who claimed to be the possessor of the double secret of the transmutation of the metals and of the prolongation of life for several centuries, died at the early age of 48 in a condition near poverty. We cannot, however, deprive him of the credit to which he is entitled for his early work, namely that of introducing into medicine the use of preparations based upon antimony, mercury, and various salts, including iron, for all of which he is considered by many as the founder of pharmacology.

THE next century provided the most important single advance in industrial medicine and surgery, due to the great works of Dr. Bernardino Ramazzini, the first of which appeared in 1700 and covered the whole field of occupational diseases.* Dr. Ramazzini, born in Carpi, Italy, and educated at Parma University, became known as "the father of Industrial Medicine and Surgery," and was referred to as Hippocrates III. Lack of time prevents going into the wonderful life and works of this illustrious man, who is acknowledgedly the founder of what is today our great field of industrial medicine. However, any symposium on industrial medicine without some reference to the great achievements of this modest industrial physician, physicist, and philosopher, would be incomplete.

He did amazing research in mines, workshops, and foundries and made lasting contributions relative to the etiology of occupational diseases and methods of their prevention. He was criticized by contemporaries for experimenting on animals, and was ridiculed for exposing his life to danger in his investigations. However, he succeeded in firmly establishing industrial hygiene on a sound scientific basis in a gallant effort to overcome the scandalous conditions of employment and their disease producing influences.

In England, where about 50% of the workers died under the age of 20, owing to inhalation and other

*De Morbis Artificium Diatriba.

occupational diseases, as well as very poor hygienic working conditions and the employment of large numbers of children, Adam Smith was quick to recognize the import of Ramazzini's works, and made possible the reorganization of England's industries through suitable legislation and the installation of work systems and work conditions as promulgated by Ramazzini. Twenty editions and many translations of his works disseminated his teachings throughout the world—and resulted in the phenomenal industrial expansion of England, as well as the Continent and America.

IN THE 19th century, with the rise of industrialism on the one hand and the constant development of biological and the medical sciences on the other, the knowledge of occupational diseases achieved rapid development, as shown by the significant literature of the period, encompassing the whole field of industrial medicine consonant with the technological developments of the century.

Industrial researches were carried out in France, Germany, Italy, England, and even in America, where Dr. McCready contributed his great work on "The Influence of Trades, Professions and Occupations in the United States in the Production of Disease."

Parallel with other social and technological developments, the 20th century marks the rise of industrial medicine and surgery to the level of scientifically organized effort, activity and study, attracting specialists from all branches of medicine.

Analogously, with the inception of industrial medicine and surgery, the practice of giving compensation was carried out in primitive times, dictated perhaps either by fear or religious canon, or by practical motives.

THE history of compensation proper, however, dates back to the days of ancient Rome when the Eternal City's foreign legions received rewards for their services and injuries in terms of property grants and gold. This was considered a necessary step in effecting their rehabilitation after a war. Through the centuries, disabled soldiers received additional property and money grants upon their return from a war. This enabled the machines of agriculture and industry to get started again, and concentrate on producing the necessities of life.

A brief review of the industrial conditions before the advent of the workmen's compensation laws in this country is necessary to understand the social and economic factors which existed prior to the exploitation and development of our great inventions.

Long arduous hours in ill-ventilated, poorly-lighted environments, with no thought given to sanitation or hygiene or attempts to make the work interesting, the inadequate remuneration, the frequent instances of lack of understanding and training, the inadequate and incompetent medical care in cases of industrial accidents, the lack of any disability benefits—either temporary or permanent, and the lack of economic protection of dependents during disability periods, all appear to have suppressed whatever industrial progress might otherwise have taken place. In some instances, this was probably due to the profound ignorance of those at the head of our industries or our government, and in other instances, to the abject indifference of the people to their social responsibility.

Finally, during the latter part of the 19th century, the first organized scientific efforts were directed towards the development of a legislative remedy for these conditions. There was an almost universal desire for a more equitable distribution of the burden of economic loss, resulting from work injuries. This led to the enactment of workmen's compensation laws throughout most of the civilized countries in the world, and ushered in what developed into the present liberal workmen's compensation system.

It was Bismarck in Germany, who in about the year 1880, advocated the fundamental principle that the risk of injury to workmen while engaged in the employer's service was a social risk, chargeable to the business itself, and the losses arising from it are to be added to the production costs and to be borne ultimately by the community at large. This principle was generally accepted throughout most of Europe and was recognized by many as a forward step in the progress of a civilized state. An injured workman or, in the event of his death, his dependents were permitted to request as a right those benefits, which were previously considered a charity, and which were essential to his being provided with adequate and competent medical care with compensation benefits for himself and his dependents during the period of disablement.

I shall leave this subject at this point to say something regarding industrial medical practices under the present workmen's compensation system. Doctors are looked upon as the important cog in this system, and their practices regulate to some extent the smooth functioning and precision of its operations.

Now, what is expected of the doctor in whose trust is placed the destiny of our workers and the future of our industries? In the first place, he must be qualified in his field of medical practice, and legally authorized, with suitable code letters, to treat workmen's compensation cases.

LET US consider what are the duties of the industrial physician or surgeon, since the advent of free choice of medical care by the claimants and the assumption of responsibility for the success of this liberal provision by organized medicine. How do the doctors' responsibilities differ today under this system from those prior to July 1, 1935, when the amendment to the law providing free choice of physician was enacted. Let there be no misapprehension as to what I mean when I speak of the responsibility of the physician. The doctor does not have to be told what his first responsibility is. He understands thoroughly well that his first responsibility is to his patient and that he extend adequate and competent medical care to ensure an optimum result and early return to work. Physicians have understood this primary responsibility long before the advent of the compensation laws.

It is not this responsibility that I have in mind when I compare the industrial medical practices of today with those that existed prior to the coming of the workmen's compensation law.

The responsibility of which I speak has to do with the doctor's relationship to his patient, to the Labor Department, to the employer, and to his colleagues, namely, to do his part in developing the medical picture upon which a decision to pay compensation, or not to pay, may depend, or without which adjudications of claim by referee cannot be made properly.

By this, I mean that the attending physician should secure an accurate and complete history, make a thorough physical examination, and submit the medical reports to both the Labor Department and the employer's medical representative, at the earliest possible time after rendering the initial treatment. Without this medical information, important questions of causal relationship and adequacy of medical care, of completeness of diagnosis, and also questions of prog-

nosis, and the need for rehabilitation study cannot be decided. This will result in unnecessary delay in payment of compensation benefits to deserving claimants, and may encourage lack of cooperation and possibly malingering; it may also introduce psychogenic elements which will ultimately interfere with the claimant's recovery and rehabilitation.

The submission of incomplete or carelessly drawn-up medical reports, or any delay in mailing them, will also obstruct justice in our compensation hearing procedures, since equitable adjudication of a claim contemplates, among other things, accurate and full medical information, including a complete history, as early after the reported accident as possible.

The history of an accident or occupational disease should be detailed and should include any relevant employment history. The doctor's examination should also be complete and contain such important things as blood pressure and pulse rate. There should be as complete a general examination as possible, since treatment of any complicating condition found may not only result in shortening the disability period of the claimant, but also in restoring him to his job in presumably better health than at the time of the accident. We are all aware that any measures taken to improve the general health of our industrial workers will probably result in fewer accidents, reduced losses in man-hours of work, better working performance, and reduced costs generally.

Time and accuracy are obviously of the essence in bringing about a satisfactory disposition of the issue of causal relationship. It is very difficult to evaluate fairly any possible relationship that may exist between a disabling condition and an industrial accident if the first medical findings are made months after the accident. For example, how can a doctor or a referee satisfactorily decide whether a chronic varicose leg ulcer or phlebitis is secondary to an alleged blow on that limb several months prior, if there was no medical examination at or about the time of the accident. The converse of this is also true. Having a full understanding of the possible injury to justice and to the claimant, as well as to the employer, that any delay in examination or in submitting reports will result in, all interested parties should collaborate in seeing that this is done.

The industrial physician should also subscribe to the other provisions of the law regulating medical practice in workmen's compensation cases, with respect to the enforcement of which organized medicine and the Industrial Commissioner have pledged their full cooperation. The Commissioner is invested with complete authority to enforce these rules and regulations which are contained in the amendments of the workmen's compensation law, particularly Chap. 258-930 of the laws of 1935. Every doctor qualified to treat a workmen's compensation case should be familiar, not only with these provisions of the law, but also with all of the other sections of the compensation act, since many of them have to do with the medical care of the injured workmen.

I SHOULD LIKE, at this point, to stress a philosophy which I believe will best guide the physician in the satisfactory performance of his duty in workmen's compensation cases. In a way, it also sums up to the provisions and intent of the workmen's compensation law in so far as the role of the industrial physician is defined or implied. This philosophy embodies three basic factors:

1. The prevention of occupational injury and disease.

2. Adequate and competent care for the injured worker during his disability period, including both medical services and compensation benefits. (Under this provision I would also include accuracy and timeliness in submission of medical reports by the attending physician.)

3. The utmost restoration of the injured worker's vocational ability and earning capacity; i.e., his early effective rehabilitation in so far as possible, through recontruction surgery, occupational therapy, vocational guidance, therapy and psychotherapy.

This philosophy should be the industrial physician's medical doctrine; the success of any system of workmen's compensation anywhere, will depend upon the extent to which it is followed by all individuals having anything to do with a workmen's compensation case; the physician, the referee, the claim adjuster, the claimant's representative, the claimant, organized medicine, the employer, the insurance carrier and the Labor Department should all do their part in establishing this philosophy. The humanitarian role of organized medicine in providing, developing, and regulating the best program of medical care for the injured worker should be supplemented by the honest, efficient, and wholesome thinking of all the other agencies also entrusted with the destiny of the health of our workers.

Our motto in the State Insurance Fund (where we make over 50,000 examinations yearly) is "to keep as many workmen at as many jobs as many work days as possible." The fulfillment of this is contemplated in the philosophy which I have just stated.

An important factor in the success of free choice of physician is the provision of a panel system of authorized physicians. Doctors are classified according to their qualifications and experience and should limit their practice on compensation cases to the field defined by the code letters conferred upon them by the qualifying committee of the County Medical Society or the Industrial Commissioner. Through this panel arrangement, the industrial segment of our society is provided, on a general scale, with the best care that medical science can offer. Employers and insurance carriers are well aware of this, for, in the long run the best medical care usually provides the greatest savings to all parties concerned.

Any divergence of opinion between the physician of the claimant and the insurance carrier should be discussed at a conference following joint examination of claimant either with or without the Labor Department Medical Examiner. This may pertain to diagnosis, necessity for treatment or type of treatment, hospitalization, authorization for special surgical procedures, need for special nurses, amount of permanent functional loss of a part, attainment of optimum result, unpaid medical or hospital bill, or any unsolved medical problem affecting the claimant, the doctor, the employer or the insurance carrier.

Up to the present we have had much success in ironing out the controversial elements which may be associated with the handling of the case, through such conferences with the attending physician. There is room for further improvement in carrying out the provisions of the workmen's compensation law through a better understanding of it, and its embodied medical philosophy, by the physician, the insurance carrier, the Labor Department, and the claimant. There must be active and conscientious cooperation on the part of all of these.

Discussion

DR. HARRY V. SPAULDING (New York): It is certainly a tribute to the foresight of the legislators of New York that nearly all of the other states in the union have

fashioned their compensation laws after the pattern of ours. While there are many minor differences of procedure in the various states, the benevolent provisions are much the same in principle. It would appear that all of the advanced reforms and amendments of the original law, such as free choice, occupational diseases, the silicosis amendment, etc., are initiated here in New York and are rapidly followed by legislators elsewhere, making this state, as it were, the pioneer of enactments designed for improved industrial conditions. And while many of these new provisions, such as the free choice amendment, are a little difficult to put into practice, nevertheless, by trial and error, the culling out of certain original bad features and the addition of new and perhaps better after-thoughts, we have a working plan in this state which is, in the long run, perhaps a little more equable to physicians as a whole, to carriers, and, possibly also, to the injured.

Organized medicine was greatly advanced by the amendment of July, 1935, which gave the privilege to the injured workingman to choose his own physician. And the machinery which has been elaborated to carry on the provision is beginning to smooth out the various inadequacies and differences that first prevailed. It was a wise provision of the County Medical Society and those who were instrumental in promulgating the law that every physician be identified with his specialty, so that the injured may be able to be guided in his choice of physician, and both the carriers and the referees be acquainted with the qualifications of the hundreds of physicians with whom they come in daily contact.

One cannot but admire the commendable work of those, headed by Dr. Kaliski, who have been instrumental in fostering a better relationship between the physician, the carrier and the Labor Department, and who have worked out a system whereby all interests are welded into a smooth running machine—including the so-called grievance committee, the arbitration committee and the various committees for rating men in their specialties—all without prejudice or personal interests. Thus, for example, the arbitration committee, composed of groups of doctors from the various counties, are better able to adjust whatever minor differences may arise among themselves; this is infinitely more satisfactory than to carry on interminable unfriendly conferences. Far better that doctors take care of their own house, than that they call in others to do it for them.

There are definitely three obligations incurred in the various phases of compensation: Those of the physician to the patient; the physician to the carrier, and the physician to the Labor Department. But let me say a word first as to the relationship of doctor to doctor.

One of the most delicate relations is that which exists between doctor and doctor. The injured has the privilege of selecting his own physician, and it behooves the first attending physician gracefully to relinquish his professional interest if, for any reason, the injured wishes to be treated by his own family physician—even though in many instances the first attending physician may feel that he is much more qualified in the industrial field. This, unfortunately, is one of the weaknesses of the free choice prerogative, inasmuch as it has always been to the carriers', shall we say, business advantage to employ the very best of talent, to effect a shorter convalescence and, consequently, to curtail medical costs.

The procedure of transfer of patients should be carried out very carefully. It is no reflection upon the first attending physician who rendered emergency treatment that the injured should later prefer his own family physician who has, perhaps, attended him for many years. It is one of the cherished benefits of the patient, and the first attending physician should take it gracefully.

If, however, any physician chosen by the claimant is not treating the case along standard lines, the carrier is protected by providing consultants to safeguard his interests. The County Medical Society has provided means by which a patient may receive the benefits of standardized medicine, even though he be ignorant of them. As time goes on, however, I feel that the relationship of doctor to doctor is greatly improving under the new regulations.

Now, as regards the obligation of the physician to the patient, I can do no better than to quote DR. LAURICELLA:

"Let there be no misapprehension as to what I mean when I speak of the responsibility of the physician. The doctor does not have to be told what his first responsibility is. He understands thoroughly well that his first responsibility is to his patient, to secure his early recovery and effective rehabilitation and in order to accomplish this, that he give the best within him and, in so far as possible, that he place at the disposition of the claimant the best that medical science can give."

We are pleased to believe, also, that a better relationship has developed between the doctor and the carrier since the medical society has supervised the picture and particularly since the society has given the doctors throughout the state a code rating. The carrier wants, above all, competent treatment by industrially trained surgeons and physicians—doctors who can report the facts and give honest opinions as to cause and effect, and doctors who have the true industrial point of view, which is to return the patient to industry as soon as possible.

As regards the relation of the doctor to the Labor Department, it is important that he be thoroughly conversant with all the rules of procedure in reference to submitting the C-104 and C-4 and other forms, and that he be acquainted with the rules as to the way in which he must communicate with the employer in reference to incurring expenses beyond prescribed amounts.

Whatever is written becomes legal. Accurate, honest, or careless reports reflect the physician. Many important questions have to be answered—an accurate history of the accident, a true description of the injuries, an unbiased opinion as to causal relationship, and a careful estimate of liability—and all without prejudice in order that the referee may be in a better position to decide the case.

There are two things which we, as physicians, should bear in mind in reference to industrial medical practice: (1) the obligation to return the man to industry, and (2) the rigid observance of proper practices among ourselves.

Orientation in Industrial Health

—What Every Doctor Should Know—

LONG ISLAND COLLEGE OF MEDICINE, Brooklyn, New York, announces a series of special sessions in industrial health, throughout the first two weeks of November. These will be held under the auspices of the Department of Preventive Medicine and Community Health, and will offer:

Intensive post-graduate instruction in industrial health by industrial physicians and the faculty of the college.

Afternoon and evening lectures and demonstrations.

Daily visits to clinics of industrial plants.

"Internships" in medical departments of industrial plants following the two-weeks' course.

The lectures and clinics are planned for the period November 2 to November 13; the industrial "internships" for the period from November 16 to December 12.

THE keynote of the special sessions is contained in a quotation from "The Teaching of Industrial Health," by Dr. C. M. Peterson, Secretary, A.M.A. Council on Industrial Health:[1] "The health of the industrial worker is vital to national security. Yet with notable exceptions the requirements of industry in the fields of industrial medicine, surgery and hygiene are being met in very incomplete and fragmentary fashion, without clear realization of objectives or their value to the health status of the community as a whole. It is equally clear that the medical profession has been hampered in its approach to this useful and expanding professional activity and will continue to be hampered until adequate provision is made for in-

1. *J.A.M.A.*, 118:731-733, February 28, 1942; *Industrial Medicine*, March, 1942, pp. 121-123.

struction in modern industrial health methods, both before and after graduation."

OBJECTIVES OF THE SESSIONS: The planning for the course has been done with these objectives in mind:

1. To set up the course in a way that will demonstrate the organization and extent of the field which industrial medical practice today covers.
2. To relate the course at every point to the part the industrial physician can play in improving industrial efficiency and maintaining wartime production.
3. To stress the problems common to all industrial medical practice, the step-by-step process of building a medical department and the human relationships involved in this special type of practice.
4. To make the course of interest and value to management and thereby to widen the understanding of the practicality as well as the desirability of establishing or extending medical departments.
5. To establish the basis for a standard course which will help meet the need for post-graduate instruction in modern industrial health.

POLICIES: These policies will guide the organization and operation of the course:

1. Physicians in active medical practice will be asked to lead each session and to enlist the best advisers obtainable, lay or professional, to help demonstrate various aspects of the day's problem.
2. Subject matter will be sufficiently broad in nature to apply to both large-size and small-size industrial plants.
3. A minimum of didactic and a maximum of visual presentation through the use of charts, motion pictures, etc., will be sought.
4. A stenotype record will be made of all proceedings for appropriate use during and after the sessions.
5. A tuition fee of $75 will be charged for the full two-weeks' course. A fee of $60 per person will be charged if two or more enroll from the same industrial concern. Fees include all transportation charges for trips to industrial clinics.
6. Fees will take care of only a part of the expenses of these sessions. To make them self-financing, a few limited grants will be sought from industrial interests and from foundations.
7. While the course is intended primarily for industrial physicians, the industrial nurse, the executive officer interested in health matters, personnel department representatives and others who may wish to attend a few of the sessions or clinics may do so provided at least one representative of the company enrolls.
8. Industrial "internships" will be arranged individually, and while the College hopes to accommodate all desiring such training it cannot guarantee their placement due to war restrictions and other factors.

METHODS: (1) *A Day's Program:* A clinic in the medical department of an industrial plant in the metropolitan area will be held each morning from 10:00 to 12:00. The afternoon session will run from 4:00 to 6:00 in Clinical Hall or one of the laboratories of Polhemus Memorial Clinic at the College. Supper will be served in the College cafeteria. The evening session will take place in the main hall of Hoagland Laboratory and will run from 7:30 to 9:00.

2. *Hotel Accommodations:* Good hotel accommodations within a short walk from the College are available to those attending the sessions from out of town.

3. *Service:* The College aims to provide a daily stenotype record of each day's proceedings for distribution at the next day's session. Copies of as much material as possible will be secured and distributed in advance. It is hoped that condensed summaries of the sessions can be made available in printed form. A publication planned for the sessions is an industrial physician's Book of Forms. Two issues are planned: one for a small-size industrial plant and another for a large-size industrial plant. Each will contain standard forms used in the various divisions of a typical medical department and an explanation of their use.

4. *Organization of Teaching:* The course-hours may be divided as follows:

	Hrs. in 1st Wk.	Hrs. in 2nd Wk.	Total Hours
ADMINISTRATION (basic material for industrial medical practice)	9.	3.5	12.5
PREVENTIVE MEDICINE (dealing with aspects of in-plant health)	1.5	9.	10.5
COMMUNITY HEALTH (dealing with aspects of out-of-plant health)	5.5	...	5.5
TRAUMATIC SURGERY	...	2.	2.
CLINICS (industrial medical departments and plants)	10.	11.5	21.5
	26.	26.	52.

5. *Industrial Clinics:* A survey of plants in the Brooklyn and Long Island community, some of which are at work in war production, has been made. Medical departments in the following types of industry will be visited for the morning clinics:

First Day—Light Machine Industry.
Second Day—Heavy Machine Industry.
Third Day—Aircraft Industry.
Fourth Day—Shipbuilding Industry.
Fifth Day—Transportation Equipment Industry.
Sixth Day—Chemical Industry.
Seventh Day—Public Utilities.
Eighth Day—Transportation Industry.
Ninth Day—Clothing and Textile Industry.
Tenth Day—Navy Yard.

6. *Industrial "Internships":* The following companies have thus far offered to accept one or more "interns":

American Telephone and Telegraph Co., New York.
Consolidated Edison Co., New York.
New Departure Division, General Motors Corporation, Bristol, Connecticut.

OUTLINE OF CONTENT OF THE COURSE: The two sessions each day will be presided over by a Chairman who will introduce the topic, relate it to the theme of the course ("Healthy Workers Aid the War Effort"), introduce the speakers, and guide the question period at the end of the formal presentations.

First Week

FIRST DAY, Monday Afternoon, November 2:
Changing Concepts of Industrial Medicine:

1. The industrial physician and his field:
   - A. History and background of industrial practice.
   - B. Philosophies of practice—"finger-wrapping" vs. complete health service.
   - C. Medical needs of large and small-sized plants.
2. AMERICAN COLLEGE OF SURGEONS' Standards in relation to this course:
   - A. Minimum standards for an industrial medical service.
   - B. Basic requirements of an adequate service.
3. Human relations in industrial practice:
   - A. The approach to management and labor.
   - B. Handling staff relations.
   - C. Professional relations—the "when and how" of referrals to other physicians and to hospitals.

FIRST DAY, Monday Evening, November 2:
Dinner Meeting: "Healthy Workers Aid the War Effort."

SECOND DAY, Tuesday Afternoon, November 3:
How Any Industrial Medical Department Operates:

1. A plan for medical service to fit the requirements—space, equipment and staff needed for:
   A. Administration.
   B. Accidents.
   C. Illness.
2. The physician as administrator—his responsibilities, the departmental organization chart.
3. The staff and its duties, large plant:
   A. Other physicians.
   B. Industrial nursing staff.
   C. Secretarial and clerical.
4. The staff and its duties, small plant:
   A. Physician "on call" or part-time.
   B. Minimum staff, nursing and other, to keep service in operation.

SECOND DAY, Tuesday Evening, November 3:
Putting Your Medical Records to Work:

1. The basic records and how they are kept.
2. Summaries and analyses—how to make them and what to look for.
3. How record-analyses aid the industrial health problem.

THIRD DAY, Wednesday Afternoon, November 4:
What Are We Examining For?

1. Types and frequency of examinations:
   A. Pre-placement physical examination.
      a. What the personnel department wants to know.
      b. The physician's responsibility in "placing" the applicant.
   B. Voluntary periodic examinations:
      a. When, for whom, how often?
      b. Following through on the findings.
   C. Obligatory periodic examinations:
      a. Types of job and employees.
      b. After-absence—short-time.
      c. After-absence—long-time.
   D. Psychiatric or "job fitness" examinations.
2. Justifying the expenditures for examinations to management.
3. Using the results to locate weak spots in the plant and the medical program.

THIRD DAY, Wednesday Evening, November 4:
Industrial Illness and Compensation Laws:

1. Review of occupational and non-occupational illnesses:
   A. Upper-respiratory.
   B. Digestive.
   C. Non-upper-respiratory and non-digestive.
   D. Ill-defined or other.
2. Incidence and severity of illness by types of industry:
   A. Manufacturing—heavy, light, chemical, processing.
   B. Non-manufacturing—mining, construction, transport and utilities, business offices.
3. Recent trends in illness under war conditions.
4. Compensation laws:
   A. History and industrial background.
   B. Variation in laws between states.
   C. New trends in awards for "aggravation of pre-existing illness."
   D. Ethical questions—legal and medical.

FOURTH DAY, Thursday Afternoon, November 5:
Sickness Absenteeism—The In-Plant Offensive:

1. Getting the facts on absenteeism in your plant:
   A. Short and long-term absence analyses.
   B. Sources of comparison.
   C. Analyzing the problem in departments with poor records.
2. Putting the facts to work—typical experiences:
   A. Controlled experiments in poor departments.
   B. Appraising results.
   C. Campaigns to reduce incidence of ordinary illness.
3. Psychiatry's role in reducing absenteeism.

FOURTH DAY, Thursday Evening, November 5:
Community Factors in Illness and Absenteeism:

1. Old factors:
   A. The social diseases.
   B. Labor stress and other community attitudes.
2. New factors:
   A. Changes in composition of industrial laboring force.
   B. Housing, transportation, recreation and sick-care problems in defense areas.
   C. The three-shift day—effects at home and on the worker.
3. Industrial physician's aids in tackling community problems.
   A. U. S. Public Health Service.
   B. State and city agencies.
   C. New war agencies.
   D. Professional and industrial bodies.
4. A program of community cooperation.

FIFTH DAY, Friday Afternoon, November 6:
Raising the Level of Industrial Health:

1. Prevention as an industrial health policy.
2. Health insurance plans—their costs, methods of operation and results.
3. Health education programs for the employee.

FIFTH DAY, Friday Evening, November 5:
Doctor—Management—Labor:

1. Teamwork in industrial health.
2. Labor's attitude on industrial health measures.
3. The role of plant committees in furthering industrial cooperation.

Second Week

SIXTH DAY, Monday Afternoon, November 9:
Accidents—Their Role in Industrial Health:

1. Incidence and severity of industrial accidents, by causes and types of industries:
   A. Manufacturing—heavy, light, chemical processing.
   B. Non-manufacturing—mining, construction, transport and utilities, business offices.
2. Non-industrial accidents.
3. Set-up of a medical department to handle accidents.
4. Importance of standard procedures and records.
5. Preventive and rehabilitation services for injured workers.

SIXTH DAY, Monday Evening, November 9:
Safety and Sanitation Measures to Protect the Place of Work:

1. How plant surveys to measure toxicological, unhygienic or unsafe exposures are conducted:
   A. Ventilation.
   B. Illumination of work surfaces.
   C. Waste disposal and hygienic facilities.
   D. Locker rooms and rest rooms.
   E. Temperature.
   F. Noise and vibration.
   G. General housekeeping.
2. The industrial physician's responsibility in following through on the findings.
3. Special health and safety problems, and the medical department's program of fatigue prevention and safety education:
   A. Women workers—rest periods and plant matrons.
   B. Young, old or physically handicapped men workers—frequent examinations and adjustment of job to capabilities.
   C. Steering the job through plant committees.

SEVENTH DAY, Tuesday Afternoon, November 10:
Medical Aspects of Hazardous Jobs:

1. Hazardous materials—types, frequency of use and reasons for using.
2. Hazardous operations—involving dust, fumes, compressed air, Roentgen rays, luminous paint, etc.
3. Medical department's role in determining margins of safety in materials and operations.

SEVENTH DAY, Tuesday Evening, November 10:
Toxicological Exposures — Detection, Treatment and Control:

1. Dusts—the pneumoconioses.
2. Gases, fumes and vapors—asphyxia and related conditions.

EIGHTH DAY, Wednesday Afternoon, November 11:
Toxicological Exposures—Detection, Treatment and Control:

1. Solvents and cutting oils—industrial dermatoses.
2. Some preventive measures for dermatoses and how the industrial physician should apply them:
   A. Enclosure of work processes.
   B. Adequate exhaust ventilation.
   C. Protective clothing.
   D. Enforcement of cleanliness.
   E. Protective ointments.
   F. Use of non-irritant industrial cleansers.

EIGHTH DAY, Wednesday Evening, November 11:
Toxicological Exposures—Detection, Treatment and Control:

1. Lead—absorption and poisoning.
2. Heavy metals—chromium, manganese, etc.
3. Summary of toxicological exposures and general rules of procedure for the industrial physician.

NINTH DAY, Thursday Afternoon, November 12:
Surgical Management of Industrial Injuries:

1. New surgical procedures in industrial traumatology —fractures, crushing and laceration, puncture wounds.
2. Industrial hospital facilities and procedures for emergency cases.
3. Some clinical experiences.
4. Burns—treatment and preventive measures.

NINTH DAY, Thursday Evening, November 12:
Nutrition in Industry:

1. Survey of the role of nutrition in industrial health.
2. A practical plan of action for the physician:
   A. In-plant—medical control of eating facilities.
   B. Outside the plant—cooperation with the housewife, nearby eating places and local food stores.

TENTH DAY, Friday Afternoon, November 13:
Report and Observations on Clinical Visits:
The industrial dispensaries in various types of industries visited during the morning of the nine preceding days of the sessions.

TENTH DAY, Friday Evening, November 13:
Meeting the Industrial Medical Emergency:

1. In plants with adequate medical departments:
   A. An expanding service—prevention, conservation, treatment, rehabilitation.
2. In other plants:
   A. With medical service—doing a better job:
      a. Have a plan.
      b. Know your plant.
      c. Gain the confidence of management and labor.
      d. Follow through.
   B. Without a full medical service:
      a. Cooperative health services—do they work?
      b. Visiting nurse service.
3. What the industrial physician should know about new plans for meeting the emergency.
   A. Within the profession.
   B. Outside the profession.

DR. CASSIUS H. WATSON, of American Telephone and Telegraph Company, and DR. J. J. WITTMER, of Consolidated Edison, have been prime movers in the development of this course. The Medical Advisory Committee, as presently constituted, is as follows:

DR. LEVERETT D. BRISTOL, Health Director, American Telephone and Telegraph Company.

MR. H. F. BROWNE, Director, Management Research Division, National Industrial Conference Board.

DR. W. IRVING CLARK, Medical Director, The Norton Co.

DR. IRVING GRAY, Chairman, Subcommittee of Industrial Health, Kings County Medical Society.

DR. T. LYLE HAZLETT, Medical Director, Westinghouse Electric and Manufacturing Company.

DR. D. D. IRISH, Medical Consultant, The Dow Chemical Company.

DR. HARRY J. JOHNSON, Director, Life Extension Examiners.

DR. DON B. LOWE, Medical Director, The B. F. Goodrich Company.

LIEUTENANT-COLONEL A. J. LANZA, Office of the Surgeon General, A.U.S., M. C.

DR. CAREY P. MC CORD, Medical Adviser, Chrysler Corp.

DR. VICTOR C. HEISER, National Association of Manufacturers.

DR. KINGSLEY ROBERTS, Director, Medical Administration Service.

DR. LOYAL A. SHOUDY, Chief of Medical Service, Bethlehem Steel Co.

Clinics and "Internships"

A SERIES of daily clinics to be held from 10:00 to 12:00 each morning of the two-weeks' session in the plants of typical industrial establishments in Greater New York.

Immediately following the conclusion of the two-weeks' sessions, a month's "internship" in the medical department of an industrial firm will be arranged for full-time matriculants desiring such further training.

Treatment of Recent Intracapsular Fractures of the Neck of the Femur

JAMES W. DAVIS, M.D., F.A.C.S.,
Statesville, North Carolina

ALL fractures of the hip joint demand skillful medical and surgical attention which should be continued until maximum improvement has been obtained.

In any injury of the hip joint an exact diagnosis is necessary. For this purpose a very careful x-ray examination, including stereoscopic x-rays, should be made. The patient should be thoroughly studied and any other conditions that might affect, directly or indirectly, the treatment or healing of the injured bone, should be diagnosed. Unless we keep this latter consideration in mind we may get slow union, or possibly no union at all. Also, unless we recognize certain conditions which frequently afflict the aged, such as cardiorenal diseases or other affections of the blood supply to the various parts of the body, we may still have the possibility of a poor result—if nothing worse.

In our experience at Davis Hospital we have come to the conclusion that the vast majority of fractures of the neck of the femur, especially the intracapsular type, are best treated by properly inserting a Smith-Petersen nail. The fractured bones are thereby held in apposition and given the best possible chance to unite in their correct relation, assuring the patient not only a good hip joint but also the ability to walk as usual. Our problem, therefore, is the same as in any other fracture, i.e., reducing the fracture and holding it in position until healing takes place. The older treatment methods of fractures of the neck of the femur were often disappointing. Union was slow and difficult and the type of fixation used, such as the double spica, which kept the legs, knees, ankles, and hip joints fixed over a long time, caused the patient a great deal of agony, and usually, also the aggravation of old, arthritic conditions and the stiffness of joints so likely to occur, especially in the aged, when joints are kept in absolute fixation over a long period. The mental and physical suffering of patients who have had to undergo this treatment was, as one patient told me years ago, most horrible. Even in fairly healthy people this type of

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treatment would not always hold the fracture in good position, and non-union and a life of invalidism were the lot of many who were so unfortunate as to have a fractured hip joint.

While, of course, no method of treatment offers perfect results, yet the Smith-Petersen nail, properly applied, gives the best chance of good union in an intracapsular fracture of the neck of the femur. The period of healing, which was such a nightmare to patients by the older methods of treatment, is relatively easy and comfortable.

In this method, however, there are certain problems that are important and which it has been necessary to solve in order that we might insert the Smith-Petersen nail in the right position and hold the fragments in good approximation and immobilization, enabling healing to take place as rapidly and satisfactorily as possible. The principal problem is inserting the guide pin properly so that a cannulated Smith-Petersen nail may be threaded over this and driven in correctly. This is not only the most important part of the operation, but the most difficult as well.

We have used various means of localization, including the fluoroscopic method of obtaining the proper position with reference to the anteroposterior or horizontal plane, and have inserted the guide pin by the "trial and error" method so far as the vertical plane is concerned. Sometimes it was necessary to insert the guide pin a second, and occasionally a third, time, in order to get an accurate position. Now, we use a combination of x-ray localization and the Engel and May localizer. In using this instrument we have no trouble in getting an accurate direction in the horizontal plane, but in the vertical plane we have found this more difficult. Since a localization in the vertical plane is absolutely essential in order to get the guide pin accurately inserted, we have devised a change in the original technique which has enabled us to get practically perfect localization for the guide pin over which the Smith-Petersen nail is threaded. This acts as a guide so that the nail will pass through the center of the neck into the head of the femur in the most favorable position. When the guide pin is once accurately placed, the rest of the operation is comparatively easy.

For this operation we prefer spinal anesthesia. A vertical incision is made, exposing the outer surface of the greater trochanter, and an Engel and May localizer is used to obtain the transverse plane. When the x-ray is developed and the proper direction and position are obtained, if necessary a second pin is placed in position and the first withdrawn and the localizer threaded over this in the central channel but in a vertical position. At this point, instead of continuing with the original Engel and May technique, we insert a guide pin in the direction which, in our judgment, is at the center of the neck of the femur and, since we have estimated beforehand the approximate length from the surface of the trochanter to the articular surface of the head of the femur, we know just how deep to insert this pin in order to have it pass through the fractured area into the head of the femur and thereby, to some extent, fix the fragments in position. This is the most important part of the technique we have devised, and we have found it most useful and helpful. It may be that the guide pin is not in the exact position, but it does give us the fixation of the fragments and enables us to x-ray the leg more accurately by flexing and abducting and slightly rotating the femur on the injured side so that a vertical x-ray may be made, using a Bucky diaphragm and a heavy tube on a regular x-ray operating table. This produces a radiograph with good detail and definition and makes the localization of the vertical plane comparatively easy.

The original method was to leave the injured leg in the same position as when the transverse plane was located, and then place, vertically, a casette with a screen on the outer surface of the hip and upper part of the thigh at right angles to the rays of the portable x-ray and, by raising the knee of the uninjured leg, point the rays directly through the neck of the femur. In this way there is obtained a transverse view of the neck of the femur with a localizer in position, making it easy to direct the insertion of the guide wire through the trochanter into the head of the femur so that the nail may be threaded over this and driven into place.

We found this method a litle more difficult. In thick, heavy patients it is difficult to get a good radiograph with a portable x-ray. We obtained from the Patterson Screen Company a fluorazure screen which is very rapid and which we found very helpful. In addition, a simple holder was devised in our x-ray department which enabled the casette to be held in position and, at the same time, the extension arm gave the line or direction for the portable x-ray so that the x-ray could always be directed at right angles to the screen. This was a great improvement.

In many cases, however, where the patient, for some reason or other, moved slightly or where the tissues were thick, as in cases of very heavy, obese individuals, there was some difficulty even with this.

We then decided to pass a guide wire directly through the localizer into the neck of the femur and, with this holding the fragments in proper position, we felt that there would be no change in the position of the ends of the bones which had already been reduced, even by flexing and abducting the leg so that the transverse view could be obtained and at the same time using a Bucky diaphragm and a powerful x-ray tube to enable us to get fine detail and definition with a short exposure. This we have found to be of the greatest help; it simplifies tremendously the insertion of the Smith-Petersen nail which is the most important and the most difficult part of the operation.

Before inserting the first guide wire in the process of getting a vertical localization, we determine the exact length from the surface of the trochanter to the articular surface of the head of the femur and then pass this pin in so that it will stop about one-half inch from the articular surface.

If the first pin is not in the proper direction and position, we can easily tell from the localizer just where to put a second pin which will be approximately through the center of the neck of the femur and extend into the center of the neck and into the center of the articular head of the femur.

Here again we make accurate measurements and, by means of a chart which has been made available, we get a nail of the proper length and thread this on the guide pin and then drive the nail into place so that it will come to a position about one-half of an inch from the articular surface of the head of the femur. When so inserted the end of the nail is driven into strong bone and will be less likely to come loose or work out. This, therefore, gives far better chance of good union.

It is important in each step to determine the exact distance the guide pin should be inserted and to determine the length of nail that will be suitable.

Another point we have found helpful is to have a nail of the proper length so that the head of the nail may be driven in practically flush with the surface of the trochanter. Also we sometimes use a small nail through this end of the Smith-Petersen nail to anchor it in place and prevent its working out. An anchor nail

is most helpful in cases where there is absorption at the neck of the femur and trophic disturbance, as in the aged. Where this occurs, as a rule, the nail keeps the ends of the bones in their proper alignment, the surfaces of the bones come together, and union is obtained even though there is some absorption and shortening of the neck.

After the incision is closed the patient is returned to the room and placed in a comfortable position. A support is used to keep the bedclothes off the leg and foot and to prevent rotating the foot too far outward. A cradle is very helpful in this respect.

FROM this time on, there are a great many things that should be done that will add much to the patient's comfort and to the success of the operation, as well as reduce the healing time to the minimum and give the maximum of good results.

I want to stress the fact that, in treating fractures of the neck of the femur, a well-trained operating team is necessary and also a competent x-ray man and assistant. We must have a well set up operating arrangement so that the operation, together with the x-ray work, may be done with the least possible delay and the greatest possible speed, so far as is compatible with good work.

The postoperative treatment is also of the most vital importance. No matter how well an operation is done, how accurate the technique, or how carefully the nail is inserted in the proper position with perfect apposition of the broken parts, yet if we neglect this most important part of the treatment we may still obtain a bad result and non-union—which means a tragedy for the patient and a reproach to the doctor.

Patients are allowed to move the injured leg immediately after operation. They are told, of course, not to use any great muscular force. They are allowed up in a chair in a few days, sometimes the day after operation. In about two weeks they can go about on crutches but are not allowed to bear weight on the injured hip. Weight bearing should not be allowed until the x-ray shows good healing. This takes from three to five months, sometimes from eight to nine months. The fractured femur should be checked a few days after operation and then every three weeks until it is certain that the fracture is in good position and that the nail is holding properly. After that an x-ray should be made every month to six weeks until healing is complete. Only when the radiograph shows complete healing do we consider the patient well.

In many cases we remove the nail after healing is complete, but usually we wait until several months after the patient has been walking about and we are sure there is no trouble so far as union is concerned. In a number of patients, however, we have not removed the nail at all, and so far have noted no trouble whatever. Some of the nails have been of rustless steel and others of vitallium. In no case have we observed any complication as a result of leaving the nail in the hip, either with the rustless steel or vitallium. As a general rule, however, our procedure has been, in younger patients, to remove the nails after healing is complete, but in older patients it is necessary to leave them in much longer or possibly not remove them at all. It is my opinion that it is not a bad idea to leave the nails in a long time in any case. If trouble develops from the presence of the nail which is, of course, a foreign body, it should be dealt with promptly. We have noted no rarefaction of bone around nails, but on the contrary there seems to be a stimulation of bone formation. In one specimen which I have seen, the case of a man who died suddenly from a cerebral hemorrhage and who had had a fracture of the neck of the femur repaired by the Smith-Petersen nail a number of years previously, a channel had formed which was a perfect fit for the nail and the nail could, with a little force, be pulled out and replaced in the same position. There was a very smooth, white lining at this point which had formed in the bone adjacent to the surface of the nail. There was no sign of either necrosis, absorption or infection in this area.

Many patients who have hip fractures are anemic. For these, blood transfusions, and possibly repeated transfusions, are important. The blood-forming organs of the aged are naturally feeble and blood helps greatly in obtaining union. Blood plasma may be given from time to time when advisable.

Calcium for healing and callus formation is necessary in the healing of a broken bone, and we should estimate through the proper laboratory methods the blood calcium content. If necessary, we may give the patient a preparation known as AT-10. This has about the same action as a parathyroid gland or parathyroid extract; however, its action comes on more slowly and persists longer, and it does raise the calcium level of the blood. By keeping this up, we can obtain a normal blood calcium which is important.

Frequent checks should be made on the urine. Blood chemical tests should be run routinely to determine, when indicated, the blood urea, or if necessary, the blood sugar. We should also keep in mind the blood chlorides. When intravenous treatments are given frequently, it is necessary that these points be observed and that we always have available the exact condition of the patient's blood during the course of treatment.

For the past few years we have been using sex hormones in the postoperative treatment of these fractures. When indicated, in the female, we have used Theelin. We have also used Stilbestrol and Di-Ovocylin. It is my opinion that these are important aids in some cases in obtaining a good result. In women who are in the midst of a menopausal disturbance and have the distressing symptoms which we ordinarily describe as the menopausal syndrome, there is nothing that gives greater relief than sufficient sex hormones, or those preparations, such as Stilbestrol and Di-Ovocylin which, while not chemically related to the sex hormone, yet give practically the same action.

In the male we use the preparation called Testosterone Propionate. One form of this is made by the Ciba Company and sold under the trade name of Perandren. We have found this especially useful in the aged. The action of Testosterone in the male is usually not quite so pronounced as that of the corresponding products in the female, yet we find that it is of tremendous value in some cases and often transforms a morose, depressed and mildly mentally disturbed patient into a more normal individual with a cheerful outlook on life, even in the presence of a fractured hip. Such a patient will cooperate far better than one who has not had this additional treatment. We must recognize the fact that in these cases, where indicated, the sex hormones do have a remarkable result on the healing of any part of the body, especially the bone.

Other things that must not be neglected are physiotherapy, heat, massage, passive motion, and keeping the general body functions going along normally. These are important and add a great deal toward helping to obtain a satisfactory union of an intracapsular fracture of the neck of the femur.

Mental therapeutics should also be remembered; the patient should be kept in a cheerful frame of mind.

On returning home the patient should have a good

hospital bed, with a first-class innerspring mattress. This, together with capable and competent nursing attention, is, of course, necessary.

We should not forget the various tonics that are helpful in keeping the general condition up to the highest possible point. In the presence of a mild anemia, not sufficient to require transfusions, the patient may be given Reticulogen intramuscularly. Also helpful is the hypodermic preparation of vitamin B_1. Vitamin enriched bread, orange juice, other fruit juices and the proper diet should be given the patient.

No matter how technically perfect the operation may be, and no matter how accurately the fragments may be restored to proper position, with a Smith-Petersen nail applied to hold them properly, yet we must recognize that all these other methods of treatment and all the other forms of therapeutics are useful and should be used where indicated. Unless we do this, we will not get the results we expect. Where we do use all these aids, even though they are not absolutely necessary, we will get far more rapid healing and much better results.

Naturally, there are many hazards in the treatment of fractures of hip joints. There are other methods of treating fractures which are useful and acceptable. The Albee method of placing a bone pin in approximately the same position as that of a Smith-Petersen nail; the Austin Moore method; and the method of Henderson, using a lag screw; the use of vitallium nails and other methods are useful in the hands of those familiar with them, and doubtless give excellent results. The Smith-Petersen nail, however, is our method of choice in the routine treatment of fractures of the neck of the femur.

There are a number of complications that may occur such as: (1) There may be absorption of the neck of the femur. (2) The nail may slip outward. (3) The wound may become infected. (4) The head of the femur may undergo necrosis. These things as well as other complications should be watched for and treated.

In fractures of the neck of the femur, reduction and fixation of the fragments in their natural position are the essential part of the treatment, yet unless we also pay careful attention to the patient's general condition, treat other conditions that may exist, and use every precaution to prevent complications, we may not obtain the highest percentage of good results.

Toxic Reactions and Death

— *Following Gold Therapy in Chronic Arthritis* —

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ALMOST all investigations involving gold therapy have indicated its toxic effects. Anderson and Palmer[1] have described in great detail many of the toxic results following gold therapy, including generalized erythema, dermatitis, aplastic anemia, purpura hemorrhagica, granulocytopenia, stomatitis, intestinal involvement, generalized hepatic impairment, edema, herpes, erythema nodosum, kidney impairment and others. In spite of its known tendency to produce toxic reactions, gold therapy as a method of treating rheumatoid arthritis has a certain number of ardent advocates.

"In the opinion of the Council on Pharmacy and Chemistry,[2] there does not seem to be sufficient controlled data to warrant recognition of the use of gold salts for other than selected cases of lupus erythematosus. The precise way in which gold acts is not known and complete success with this form of therapy must be considered highly problematic. Again, a careful search for possible contra-indications must always be made prior to institution of treatment. In view of the dangerous possibilities, the definite place of aurotherapy in rheumatoid arthritis remains controversial. Certainly the use of gold is always accompanied by the possibility of untoward reactions, and these reactions have terminated more than once in the death of the patient."

In spite of these adverse reports and the potential toxicity of the drug, its use in this country apparently remains unabated.

To emphasize the great care and caution which must be employed when this medicament is used, we are here reporting a delayed toxic reaction with death following gold salt therapy, generalized dermatitis in four patients and multiple brain hemorrhages in one patient, all treated at the Arthritis Clinic of the Hospital for Special Surgery.

Toxic reactions may occur following gold therapy even when such therapy is carefully directed by physicians with wide experience in its use. They may occur after very small initial doses (20-30 mgms.) or in the second or third series even if not in the first.

Case One

MRS. B.K., age 37, was admitted to the Clinic April 11, 1939, complaining of pain and tenderness in the wrists, feet and back of two years' duration.

Previous history: Incision and drainage of an abscess in breast in 1932.

Physical examination: Blood pressure, 96/60; pulse, 72; height, 5 ft.; weight, 137½ pounds; one infected tooth; tonsils apparently normal; slight cloudiness of left antrum on transillumination; no gynecologic focal infection.

X-ray findings: X-ray of lower back moderate arthritic involvement of left sacro-iliac joint and lower lumbar spine.

Laboratory examination: April 21, 1939:

N.P.N. ..... 27 mgm.	Kline test—negative.
Sugar .....105 mgm.	Sedimentation rate (Westergren method):
Uric acid .... 4.0 mgm.	28 mm. in one hour.
Hemoglobin 90%	Urinalysis:
R.B.C. 4,650,000	Specific gravity ..1.010
W.B.C. 7,700	Albumin 0
Polys. 63%	Sugar 0
Lymphs. 33%	Acetone 0
Monos. 2%	
Eosins. 2%	

As the patient did not have any definite focus of infection but did have a moderate increase in blood uric acid, she was placed on a low-purine diet and was given cincophen, gr. VII, and aspirin, gr. V, four times a day. Physical therapy was employed three times weekly. Since no improvement occurred after one month, gold therapy was instituted on May 16, 1939. Gold sodium thiosulfate was administered intravenously.

Date	Dosage	Urine	Sed. Rate	Blood Count
5-16-39	5 mgm.	0	28 mm./hr.	RBC, 4,650,000; Hbg., 90% WBC, 7,700 Polys., 63%
6-6-39	10 mgm.	v. ft. tr. albumin		
6-27-39	15 mgm.	0		
7-11-39	30 mgm.	v. ft. tr. albumin		
7-18-39	50 mgm.	0		RBC, 4,380,000; Hbg., 90% WBC, 7,300 Polys., 59%
8-1-39	75 mgm.	0		
8-8-39	100 mgm.	v. ft. tr. albumin		

This was a total of 290 mgm. in seven injections. The last dose was administered August 8, 1939.

On August 22, 1939, two weeks after the last dose

From the Arthritis Clinic, Hospital for Special Surgery.

of gold, the blood count and sedimentation rate were as follows:

Hemoglobin 98%
R.B.C. 4,830,000
W.B.C. 8,000
Normal differential.
Sed. rate.....14 mm. in one hour

One week after the last dose of gold, a total of only 290 mgms. having been administered, the patient complained of sore mouth. This was followed several days later by severe, painful desquamation of most of the buccal mucosa. On October 17, 1939, a generalized eruption appeared over the entire trunk, arms and legs, together with pruritus of the vagina and anus.

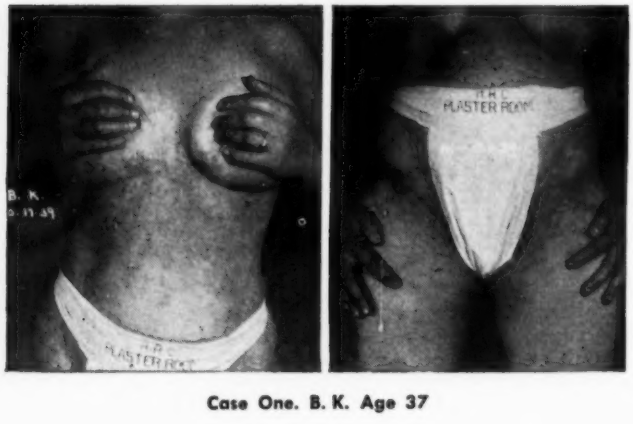
Sulfactol therapy was instituted—15 grains intravenously every other day for 27 doses, with indifferent results. Large doses of vitamin C and thiamine chloride were prescribed.

The pruritus gradually subsided. The dermatitis remained constant, skin lesions gradually turning from an angry red to a dark muddy brown color. These lesions covered the entire body but, fortunately, *they did not involve the face.*

Biopsy of the skin from the site of the dermatitis was reported as follows: "Examination of the skin biopsy from the site of the dermatitis that followed administration of the gold shows general atrophy of the cutaneous epithelium which is composed of merely a few layers of cells with a thin superficial layer of keratin. In general, the epithelium has a peculiar wrinkled papillary shape due to the presence of constricting bands of connective tissue formed in the subepithelial dermis. The dermis is rather vascular and there are small perivascular accumulations of pale endothelial-like histocytes. In a few places the basal layer of epithelial cells shows an increased amount of what is probably normal pigment. In the dermis, lodged in the perivascular histocytes there are collections of finely granular golden-yellow pigment which are probably deposits of exogenous pigment, or probably metallic gold or a gold salt. This pigment is lodged in the epithelial cells in the form of very fine granules. When examined in unstained preparations by dark field microscopy, these granules are highly refractile and give the appearance of metallic dust. In control preparations of skin, no such granules are seen. I think it is a reasonable assumption that there is a fine deposit of gold dust or one of its salts lodged in the histocytes of the skin. The only way one can be absolutely certain that this exogenous pigment is gold, would be by microspectroscopy."

One and one-half years after the last gold treatment, the dermatitis remained unchanged with only the slightest evidence of fading in the pigmentation. There was no relief of arthritic symptoms.

The accompanying photographs illustrate the character and extent of the skin lesions.



Case One. B. K. Age 37

Case Two

MR. M.S., age 44, was admitted to the Clinic on August 15, 1939, complaining of pain in arms, hands, knees and back — three and a half years' duration.

Previous treatment: Patient had considerable relief from vaccine injections given by private physicians, but relief was only temporary. No previous operations.

Physical examination: Height, 5 ft. 9¼; weight, 156 pounds; blood pressure, 110/70; pulse, 80; patient had infected tonsils which were removed September 9, 1939.

X-ray findings: X-ray of hands showed bony changes suggestive of rheumatoid arthritis.

Laboratory examination: August 22, 1939:

N.P.N. .....25 mgm.
Sugar .....90 mgm.
Uric acid ..... 3.4 mgm.

Hemoglobin 98%
R.B.C. 4,450,000
W.B.C. 12,900
Polys. 74%
Lymphs. 20%
Eosins. 3%
Lymphs. 3%

Kline test—negative.

Sedimentation rate:
43 mm. in one hour.

Urinalysis:
Specific gravity...1.016
Albumin .....trace
Sugar 0
Acetone 0
Microscopic ..negative

As the patient did not improve following tonsillectomy, on September 29, 1939, he began his first course of gold sodium thiosulfate given intravenously.

Date	Dosage	Urine	Sed. Rate	Blood Count
9-29-39	5 mgm.	0	15 mm./hr.	RBC, 4,720,000 Hgb., 92% WBC, 8,700 Polys.,74%
10-6-39	10 mgm.	0		
10-13-39	15 mgm.	0		
10-20-39	35 mgm.	0		
10-27-39	50 mgm.	0		
11-3-39	75 mgm.	0		RBC, 4,810,000 Hgb., 93% WBC, 9,000 Polys.,69%
11-10-39	100 mgm.	0		
11-17-39	100 mgm.	ft. tr.		
11-24-39	100 mgm.	0		
12-1-39	100 mgm.	0		RBC, 4,590,000 Hgb., 95% WBC, 7,800 Polys.,70%
12-8-39	100 mgm.	0		
12-15-39	100 mgm.	0		
12-22-39	100 mgm.	0		
12-29-39	100 mgm.	0	25 mm./hr.	RBC, 4,630,000 Hgb., 88% WBC, 8,600 Polys.,65%

This was a total of 999 mgm. in 14 injections. The last dose was administered December 29, 1939.

On or about January 30, 1940, the patient complained of an itching, scaly red rash on the dorsal surfaces of the forearms and hands. Gold was immediately discontinued. The rash continued until April 2, 1940, at which time severe herpes developed on the lower lip, which persisted a week.

Ten cc. of sulfactol, two injections weekly, were administered during the period from February 27, 1940, to May 14, 1940.

The pruritus gradually subsided and cleared up entirely by the end of April. The rash disappeared almost entirely by November 13, 1940, 10 months after the last injection of gold.

On October 4, 1940, a qualitative analysis for gold in the urine was done for us through the courtesy of Dr. Hartung, of the Post Graduate Hospital, New York, and was reported as follows: 0.027 mgm. of gold in 2,262 cc. of urine passed in 24 hours.

Specimens of blood and urine were taken on May 20, 1941, 510 days after the last injection of gold, and sent to the Rackham Arthritis Research Unit, University of Michigan, for examination by Dr. R. H. Freyberg.

The results were as follows:

Gold mgm. per cent in blood—0.000.
Gold mgm. per cent in urine—0.135 mgm. per 24 hrs.

The following photograph illustrates the character and extent of the skin lesions:

Case Two. M. S. Age 44

Case Three

MRS. H.D., age 65, came to the Clinic July 17, 1937, complaining of pain in the left hip, hands, knees and lower back—two years' duration.

Previous treatment: Vaccine and physiotherapy. Past history unimportant.

Physical examination: Height, 5 ft., 3 in.; weight, 109 pounds; blood pressure, 180/100; pulse, 76; patient was edentulous; no gynecologic focal infection; tonsils were reported infected as was the left antrum; patient refused to have tonsils removed; antrum was repeatedly washed until return washings were reported to be clear.

X-ray findings: X-ray of left hip revealed severe osteoarthritis with absorptive changes in the femoral head and also hypertrophic changes in the lumbosacral and sacro-iliac joints.

Laboratory examination: August 31, 1937:

N.P.N. ..... 15 mgm.
Sugar .....108 mgm.
Uric acid .. 3.2 mgm.
Hemoglobin 88%
R.B.C. 4,460,000
W.B.C. 6,000
Normal differential.

Kline test .....negative
Sedimentation rate:
54 mm. in one hour.
Urinalysis:
Specific gravity ..1.010
Albumin .....trace
Sugar 0
Acetone 0

As the results of the other forms of treatment were unsatisfactory and the patient had a high sedimentation rate, on February 11, 1938, she began her first course of gold therapy. She was given gold sodium thiosulfate intravenously.

Date	Dosage	Urine	Sed. Rate	Blood Count
2-11-38	10 mgm.		37 mm./hr.	
2-25-38	20 mgm.	tr. albumin		
3-1-38	50 mgm.	tr. albumin		RBC, 3,680,000 Hgb., 67% WBC, 7,200 Eosin, 6%
3-8-38	75 mgm.	ft. tr.		Feceol started
3-15-38	100 mgm.	ft. tr.		
3-22-38	100 mgm.	ft. tr.		
3-29-38	100 mgm.	tr. albumin		RBC, 4,140,000 Hgb., 80% Eosin., 4%
4-5-38	100 mgm.	tr. albumin	28 mm./hr.	RBC, 4,480,000 Hgb., 85% WBC, 7,200 Eosin., 6%

This was a total of 555 mgm. in eight injections. The dose was administered April 5, 1938.

On May 17, 1938, the patient developed an itching eruption on the flexor surfaces of the arms which spread to the trunk, buttocks, thighs, and arms. The pruritus increased in severity.

Sodium thiosulfate, 10 cc. of a 10% solution, was administered intravenously.

July 19, 1938, the patient was referred to the New York Skin and Cancer Hospital.

The pruritus gradually cleared up under treatment but pigmentation of the skin persisted.

In order to determine whether or not the pigment was due to the retention of gold in the skin over this long period, a section of the skin was sent to Dr. Freyberg. The report was received that the specimen contained .00028 mg. of gold.

Case Four

MRS. E.J., age 56, came to the Clinic June 4, 1940, complaining of pains in hands, wrists, feet and knees; 14 months' duration.

Previous treatment: Patient had 10 injections of myochrysine, total of 625 mgm., prior to admission to the Clinic. She also previously received aspirin and cincophen and physiotherapy with no results. No operations.

Physical examination: Height, 5 ft., 5¾ in.; weight, 143½ lbs.; blood pressure, 152/84. Fusiform swelling of left ring finger, Heberden's nodes on both hands, both knees swollen and painful. The patient was so incapacitated that she was hardly able to get out of bed, walked with a cane, and had moderate flexion deformity of both knees and hips.

X-ray findings: X-ray showed old hypertrophic changes, thinning of cartilages and synovitis of the left knee.

Laboratory examination: (three months prior to admission):

Blood sugar....117 mgm.
Hemoglobin 76%
R.B.C. 4,070,000
W.B.C. 7,000
Polys. 78%
Lymphs. 20%
Monos. 1%
Basos. 1%

Kline test—negative.
Sedimentation rate:
30 mm./45 minutes.
Urinalysis:
Albumin 0
Sugar 0
W.B.C. .....few

Gold therapy was instituted June 11, 1940; 1% solution of aurol sulfide was given intramuscularly, beginning with 3 cc. A total of 13 doses, or 108 cc., equivalent to 939.6 mgm. of gold, were administered. Together with the intramuscular aurol sulfide, the patient also received at regular intervals aurol sulfide solution, 1% by mouth (total dosage approximately 150 cc.) for one month. Last dose, November 26, 1940.

Last blood count, August 20, 1940:

Hemoglobin 84%
R.B.C. 4,400,000
W.B.C. 6,800
Polys. 65%
Lymphs. 35%

Sedimentation rate:
October 15, 1940:
22 mm. in one hour.

More than three months after the last injection of gold, a widely scattered pruritic, red, scaly eruption developed on the trunk and limbs together with a scaly eruption around the webs of the fingers which was followed by cracking of the skin and serosanguinous exudation.

Specimens of blood, urine and skin taken from the infected area were sent to the Rackham Arthritis Research Unit, University of Michigan, for examination by Dr. R. H. Freyberg, with results as follows:

Gold mgm. per cent in blood—0.053.
Gold mgm. per cent in urine—trace.
Gold mgm. per cent in tissue—0.000.

Case Five

PATIENT was first seen on June 9, 1940. At that time she complained of painful hands and feet of two years' duration, and severe headache.

Previous treatment: Gold sodium thiomalate, or myochrysine; first dose 25 mg., with an increase of 25 mg. each week until a total of 750 mg. had been administered.

When the patient had received 750 mg., or two-thirds the dosage usually given in one series, purpuric spots appeared on her legs. Gold therapy was immediately discontinued.

Calcium gluconate was given in the belief that it might prevent further bleeding.

All treatment was discontinued for a period of two or three weeks. During this time the purpuric spots present began to fade and decrease in number.

Physical examination: Weight, 157 pounds; blood pressure, 140/80; heart, lungs, abdominal and gynecological examination, negative. Patient had one tooth which was definitely infected while several showed advanced pyorrhea. Tonsils appeared to be the site of a chronic infection.

In view of the fact that foci of infection had not been eradicated prior to gold treatment and because of the purpura, it was not thought advisable to attempt removal of the tonsils or teeth.

Laboratory examination:

Blood Chemistry		Blood Count	
N.P.N.	31 mgm.	Hemoglobin	82%
Sugar	100 mgm.	R.B.C.	4,610,000
Uric acid	2.7 mgm.	W.B.C.	8,800
Calcium	10.1 mgm.	Polys.	77%
Phosphatase	2.45 B.U.	Lymphs.	19%
Total protein	5.8%	Eosins.	3%
Phosphorus	2.91 mgm.	Monos.	1%
Kline Test	negative		

Urinalysis	
Yellow	clear
S.G.	1.014
Reaction	acid
Albumin	0
Sugar	0
Acetone	0
Micro.	negative

Sedimentation Rate:
36 mm. in one hour.

X-ray findings: X-ray of hands showed typical rheumatoid arthritis.

The headache seemed to improve during July, but during the latter part of August reappeared. The headache did not respond to restriction of diet, to free purgation.

Complete blood examination, August 21, 1940:

Blood Chemistry		
N.P.N.	30 mgm.	Sedimentation rate:
Sugar	110 mgm.	46 mm. in one hour.
Uric acid	3.4 mgm.	
Calcium	9.1 mgm.	
Phosphatase	4.68 B.U.	
Total protein	6.4%	
Phosphorus	3.51 mgm.	

Clinical and radiological examinations of the sinuses revealed no cause for the headaches.

After examination by a neuro-surgeon, the patient was admitted to Lenox Hill Hospital, August 26, at which time the chief complaint was headache. No clear-cut history could be obtained because of marked memory defect, especially for recent events.

Physical examination: Gait, unsteady; Romberg, positive; weakness of all extremities but no difference in two sides; finger to nose test done poorly with either hand; reflexes all hyper; nystagmus on lateral gaze to left and right; multiple varying sized ecchymotic or bluish discolored areas over all extremities.

Laboratory findings:

W.B.C.	42,200
Lymphs.	25
Monos.	1
Polys.	78
Eosin.	1

Spinal puncture was done August 28. Initial pressure was 140 mm. of water. About 8 cc. of clear fluid was removed. The final pressure was 80. There was a slow drop in jugular pressure from 150 to 130 with some reduction in the headache. Spinal fluid examination, 5 WBC; 3 RBC per ccm.; globulin positive (one plus); colloidal gold, negative; Wassermann, negative; sugar, 50; protein, 15; urine examination, negative. X-rays of skull and long bones showed no evidence of gold deposits.

August 28, 1940, the patient became very drowsy in spite of spinal puncture, administration of sucrose intravenously, and other dehydrating measures made. She was confused and her memory was defective. The power of upward gaze was gone. The reflexes were as described, except that the Babinski on the right was strongly positive. Her pulse was irregular and she was incontinent. The impression was that she had a questionable left frontal abscess or an expanding lesion of the quadrigeminal plate and ventriculograms were advised. Ventriculograms were made the same evening and bilateral burr holes were also made. The right ventricle was entered with ease releasing clear fluid under pressure. Twenty-five cc. of fluid were removed and 20 cc. of air substituted. The left ventricle could not be entered. There was considerable bleeding from the scalp at the time of closure which was apparently stopped by the suturing of the wounds. The x-rays showed a moderately dilated right ventricle, a small left ventricle which was pushed to the right of the midline. The third ventricle was dilated and also pushed to the right of the midline. The patient was returned to the ward and a ventricular tap was done through the right burr hole with a release of a moderate amount of air and about 15 cc. of bloody fluid.

In the early hours of the morning the patient went suddenly bad, her respirations became rapid and irregular and her pulse rapid and faint.

She died about eight hours after ventriculogram.

Necropsy revealed all symptoms were due to multiple hemorrhages which we believed were due in all probability to the original gold therapy.

Case Five. M. T. Age 54

Some time subsequent to the death of the patient, Dr. R. H. Freyberg volunteered to make an analysis of the brain tissue and reported: "The brain section from Mrs. M. T. contained 0.035 mgs. of gold in a 0.10 gram sample of tissue or 0.35 mgs. per hundred grams of tissue. We commonly express the tissue gold content in this way. As yet, we have relatively little human data with which to compare this result but on the basis of our animal tissue analyses, this is a very appreciable figure."

Comments

THIS case emphasizes several important facts concerning the dangers of gold therapy. Purpuric spots appeared when only two-thirds of the dosage usually given in any one series was administered, although no indications of toxicity were manifest following the first few doses. After the skin lesions faded in color and decreased in number, serious pathology developed in the brain, with headaches as the chief complaint.

Although every known precaution was taken to prevent a toxic reaction, and although gold administration was stopped immediately after the appear-

ance of the first toxic manifestation, fatal results could not be prevented.

The late toxic effects of gold therapy may occur weeks, months, or even a year subsequent to the last administration of gold because gold is retained and slowly eliminated from the system. The slow elimination of gold has been recently emphasized by Hartung and Freyberg.

Apparently, there is no method by which one can determine beforehand which patients will suffer from the toxic manifestations following gold therapy. There is no warning period, nor does there seem to be any relation between the amount of gold administered and the onset of severity of the ensuing reactions. In spite of all precautions, reactions occur in some cases.

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Diagnosis of Absenteeism

—Highlights on the Problem—

DR. DANIEL L. LYNCH, Medical Director, New England Telephone and Telegraph Company, read a paper on "Industrial Health and the War" at the 1942 annual meeting of the Massachusetts Medical Society. This was published in *New England Journal of Medicine*, August 6, 1942. Interspersed throughout the text are a dozen or more charts analyzing the relations of certain causes of employee absenteeism, based on figures obtained by DR. LYNCH'S medical department and from DR. WITTMER'S records at Consolidated Edison Company, New York.

These figures, as DR. LYNCH remarks, illustrate "some of the problems of industrial health." As to the distribution of lost time between occupational and non-occupational accidents and non-occupational sickness, for example, 86% of 16,648 disability cases were due to non-occupational sickness that lasted eight days or more, 10% were due to non-occupational accidents and only 4% were due to occupational accidents causing disability for one day or more. "Occupational accidents seem to have been well controlled."

The frequency of medical diagnoses in illnesses lasting more than two days is related to a group of 19,500 cases. Upper respiratory infections were responsible for 48.5% of all these cases of disability, "and all efforts to better the situation have thus far been futile."

In the severity of disabilities lasting two or more days in the same group, lay-offs accounted for approximately 155,800 lost days in 1941. Again, upper respiratory infection was responsible for a third of all lost time.

The figures on frequency of medical diagnoses among men and women when the absence continued for eight or more days disclose that in both groups, disabilities due to upper respiratory infections caused the highest number of absences, as was true in the short-period absences. Disability due to off-duty accidents formed the second largest group among women, and the third largest group among men.

In studying the severity of the various types of disabilities, as one would expect, the proportion of lost time because of upper respiratory infection was less among women and among men than the proportion of actual absences, since disability is shorter in upper respiratory illness. But off-duty accidents among women caused nearly 11% of 300,000 lost days from work, and among men, 7% of 173,000 lost days. In both groups, arthritis caused appreciable lost time.

There is an increasing frequency of disability for work as age increases. In the age group from 20 to 29 there were roughly 70 cases of disability per 1000 men per year, whereas among men over 60, approximately 200 cases occurred per 1000 men. Among women, the contrast was not so great, but the upward trend of disability frequency as women advance in age is consistently upward from year to year. This emphasizes the problem of industrial health as it is affected by the older employees.

The severity of illness increases with advancing age; although men under 30 lost only about 0.7% of available work time because of illness, men over 60 lost nearly 5%. The situation was similar among women, the length of their absences increasing with age, regardless of cause.

The frequency with which absences began on the several days of the week is particularly interesting. "One wonders why such a large proportion of all disabilities began on Monday. It may be that workers did not feel quite up to par at the end of the week, but remained on to finish out the week; or it may mean that a good many of them had a "bad week end.' "

More interesting, however, is the day of return to work following disability, regardless of the day on which disability began. Among men, nearly 70% returned to work on Monday, and the same thing was true for nearly 60% of the women. "Production must continue on other days of the week, as well as on Monday, and those concerned with production cannot understand why workers who have recovered from illnesses wait until Monday to return to work. To a large extent, it is a psychologic problem—the thought of beginning the week right. Unquestionably the private physician can help in this respect; a great deal of lost time can be regained if he will permit and encourage his patients to return to work as soon as they are able."

ESTIMATED annual number of days lost from work or other usual pursuits by reason of specific chronic diseases (United States, 1937):

Disease	Annual Number of Days Lost
Nervous and mental diseases	132,500,000
Rheumatism	97,200,000
Heart disease	95,200,000
Arteriosclerosis and high blood pressure	56,900,000
Tuberculosis, all forms	41,400,000
Cancer and other tumors	36,300,000
Nephritis and other kidney diseases	28,400,000
Diseases of the female organs	26,800,000
Hay fever and asthma	21,900,000
Diseases of gallbladder and liver	20,000,000
Diabetes mellitus	19,200,000
Ulcers of the stomach and duodenum	13,600,000
Hernia	13,600,000
Chronic diseases of the skin	10,300,000
Anemia	8,500,000
Diseases of the bladder and urethra	8,200,000
Chronic bronchitis	8,000,000
Chronic appendicitis	7,600,000
Goiter and other thyroid diseases	7,600,000
Other diseases of the circulatory system	6,600,000
Sinusitis	6,000,000
Varicose veins	5,900,000
Chronic tonsillitis and other throat infections	5,400,000
Hemorrhoids	5,100,000
Chronic pleurisy	4,200,000
Chronic diseases of the eye	4,200,000
Chronic diseases of the ear	3,300,000
Diseases of the prostate and male genito-urinary organs	3,300,000

From Preliminary Reports, the National Health Survey, Sickness and Medical Care Series Bulletin No. 6, U. S. Public Health Service, Washington, D. C., 1938; included in "Primer on Arthritis," prepared by a Committee of the American Rheumatism Association, published in *J. A. M. A.*, August 1, 1942.

Early Ages

1771

1831

1856

1861

Early Ages—Heat Method. Warmth and heat—warm ashes, hot water, burning of dried animal excreta—applied to abdomen of patient, were thought of value in restoring heat and life to the cold body.

1711—Fumigation Method. North American Indians attempted to revive their apparently dead by blowing smoke into an animal bladder, then into the victim's rectum. Called also "Dutch Fumigation." Introduced into England in 1767. Fumigation used for years successfully in American Colonies.

1831—Dalrymple Method. Swath of cloth encircled chest, traction by two operators compressed chest, forcing air from lungs. Release of the pull permitted chest to expand, inducing inspiration.

1856—Marshall Hall Method. First record of victim laid prone, chest elevated. Operator pulled patient on side, held him momentarily, then let him roll back. Pressure on back of chest expelled air. Pressure released by turning, caused inspiration.

1861—Sylvester Method. Victim on back, arms above head, making lung capacity greater for inspiration; arms carried forward, folded on chest and pressed to produce expiration. Tongue held to keep air passage open. Method still in use.

1871—Howard Method. Pressure

The Evolution of Resuscitation

—History in Model and Photo—

DR. HART E. FISHER, Consultant Surgeon, Public Service Company of Northern Illinois, has just completed an original and striking diorama of the history and development of resuscitation, picturing in model and photograph the methods of all of recorded time from the crude and superstition-ridden usages of early ages to the newest applications of the scientific methods of today. This is a museum piece; it was recently moved to the Rosenwald Museum of Science and Industry in Chicago to remain there permanently.

DR. FISHER has been actively interested in this subject for many years; his reputation as an authority on its history and techniques is international. He began the preparation of his diorama in 1935. Its development took him to the principal museums and sources of historical reference in the United States and elsewhere; and the knowledge he acquired of how such subjects have been presented heretofore enabled him to make his own presentation unusual in form and extremely effective in substance.

The diorama consists of 20 cabinets, each about 3 ft. in vertical dimension, 2 ft. wide and a foot deep, mounted table-high on pipe frames, and staggered so that, beginning at the left, the front right-hand corner of the first is in permanent contact with the rear left-hand corner of the second, this, in turn, being likewise angled so that its front right-hand corner joins the rear left-hand corner of the third, and so on—the whole series forming an echelon of cabinets aligned on the axis of their front left-hand corners. Thus the front of any cabinet and

Biblical Method
In 1 Kings, 17: 21, and 11 Kings, 4: 24, is first recorded method (still in use today) of artificial respiration —breathing into and sucking air out of the patient's lungs

Early Ages—Flagellation Method. Whipping with stinging nettles, later supplemented by striking the skin surfaces with the hands and wet cloths, was considered helpful in restoring those apparently in deep sleep, by inflicting pain.

1530—Bellows Method. Paracelsus was the first to use common fireside bellows to introduce air into the lungs of apparently dead persons. Adaptations of this were used throughout Europe for 300 years.

1770—Inversion Method. Used in England, Europe, and America. Many successful cases of resuscitation from drowning are recorded. Pressure over chest aided in expelling air from lungs, and inspiration resulted when pressure was removed.

1773—Barrel Method. Used prior to 1767. May still be seen along water front. Barrel movement forward released pressure on the victim's chest, allowing inspiration. Movement of barrel back caused the body's weight to compress the chest, inducing expiration.

1803—Russian Method. Persons unconscious from cold, fumes, apparently dead, successfully resuscitated by burial. A modification was to bury victim upright with head and chest exposed. Water dashed on face.

1812—Trotting Horse Method. Used on Europe's inland waterways

Early Ages

1530

1770

1773

1803

1871

1886

1903

1918

1926

on back of prone victim, chest raised, to expel water. Patient then turned on back, operator straddling and exerting pressure on upper abdomen and lower chest, causing expiration. Releasing pressure causes inspiration.

1886—J. B. Francis Method. Raising victim by hyperextension of the body induced expiration; lowering to ground caused inspiration. Method of little value, owing to possibility of injury, in some manner, to the spine.

1903 — Schafer Prone Pressure Method. This simple method is in use today and requires but one person. Pressure applied to victim's back forces abdomen against diaphragm, compressing lungs and causing expiration. Release of pressure causes inspiration. Some 16 million Americans have learned this method.

1918—Stewart Method. First airtight cabinet method. Chamber connected to bellows which created positive and negative pressure on abdomen, deflating and inflating lungs. This was the initial "Iron Lung" type respiration of today.

1926—Eisenmenger Methods. Air pumped from electrically-driven diaphragm pump into pressure (expiration) and suction (inspiration) vessels causing, within the dome on the patient's body, alternate positive and negative pressure to induce respiration to be resumed in natural manner.

1740—Swiss Method
Placing patient in large wine cask, rolling over and over, caused abdominal organs to press against diaphragm, deflating the lungs

the left-hand edge of the one at its right can be examined at the same time. Each cabinet interior, seen through a 16-in. round opening, contains small figures, on the scale of about an inch and a half to the foot, modelled in the act of applying one of the resuscitation methods which marks a particular point of historical interest.

Turning from the first modelled scene — such as the first of the illustrations on the opposite page—the observer next sees the depiction of other historical stages by way of photographs posed by living people dressed in the costumes of the times to which the developments relate. All of the cabinets are illuminated from within, so that one looks from the front of the first cabinet to the edge of the second, and then, proceeding to the front of the second, sees from one position the figures there shown and the photographs at the left edge of the third — and so on, for all the 20 groups of figures and the 50 or more period photographs.

The illustrations show the interiors of the cabinets containing the modelled figures—the cabinet fronts having been removed. The dates are referred to the legends. There are also three selections from the illuminated photographs—the Biblical method, the Swiss wine cask of 1740, and Esmarck's way of draining the lungs, developed in 1863.

The preparation of this diorama was sponsored by BRITTON I. BUDD, President of the Public Service Company of Northern Illinois. At the Rosenwald Museum it will be the feature of a Red Cross exhibit during the early part of September, after which it will remain there permanently.

1863—Esmarck's Method
Placing patient so that abdomen is over operator's knee, head hanging to drain water from lungs, tongue pulled forward for inspiration, pressure over back causes expiration

for resuscitation from drowning. The victim's body contacting the horse, compressed his chest, forcing out air. When he was bounced from the horse's back, his chest expanded and air entered his lungs.

1829—LeRoy Method. This French physician was first to use the supine position for victim. Pressure was applied over the chest and abdomen, deflating the lungs. Removal of the pressure caused inspiration of air.

1894—Prochownick Method. Inversion applied to new-born baby. Pressure by squeezing the chest and gravity induced expiration; release of the chest compression lets air inflate the lungs for inspiration.

1916—Acklen Method. Device was strapped over lower thorax, upper abdomen; by manual operation, muscular walls were lifted by vacuum suction for inspiration; when the manual pressure was depressed, air was forced from out of the lungs for expiration.

1931—Pole Top Method (Oesterreich). The pole top method for linemen suffering from electric shock enables application of respiration at once, without lowering the man to the ground. The abdomen is compressed inward and upward, deflating the lungs. Release of compression, with gravity, induces the resumption of inspiration.

1812

1829

1894

1916

1931

Dermatitis

—Occurring in a Woolen Mill—

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and
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A WOOLEN MILL that had been manufacturing commercial woolen fabrics without more than an occasional case of occupational dermatitis among its employees suddenly began to experience an outbreak of dermatitis among workers in various parts of the plant. This outbreak began soon after the manufacture of blankets for the Army, Navy, and Marine Corps was undertaken. From July 1 to October 15, 1941, there have been 133 cases of dermatitis in a group of employees that totaled 2,192. The distribution of these cases in the various departments of the plant and the percentages of workers affected in each department are given in Table I. It will be noted that the largest percentage of cases occurred in the card room, dye house, wash room, and waste room. Among the 333 workers in these departments there were 70 cases of dermatitis, an incidence of 21%. The workers in the dye house and card room are in contact with the dye liquors and freshly dyed wool, and those in the wash room are exposed to the strong alkaline wash solution, whereas those in the waste room come in contact with waste wool having on it dyes and oils.

TABLE I.
OCCURRENCE OF DERMATITIS IN THE VARIOUS DEPARTMENTS OF THE MILL SINCE JULY 1, 1941

Dept.	No. of employees	No. of cases	Percent
Card room	166	36	21.7
Dye house	47	10	21.3
Fullings washroom	88	18	20.5
Waste room	32	6	18.8
Scouring	23	3	13.0
Picker	29	3	10.0
Burling	87	8	9.2
Wool room	63	5	7.9
Warp room	103	6	5.8
Spinning	419	22	4.5
Napping	129	4	3.1
Weaving	459	11	2.5
Clothroom	82	1	1.2
Totals	1727	133	7.7

In the process of manufacturing blankets for commercial purposes, a 0.5% solution of sodium dichromate is used ordinarily as a mordant in the dye bath, but for military blankets the concentration of this compound was increased to 3%. The plant physician suspected that this higher concentration of sodium dichromate was responsible for the increased incidence of dermatitis among the employees, and the Industrial Hygiene Division of the State Health Department was requested to study the problem. A brief survey by the Division seemed to indicate that, while the higher concentration of sodium dichromate used might account for some of the increase in cases of dermatitis, it did not satisfactorily account for all. The Division then invited the Industrial Dermatoses Section of the Division of Industrial Hygiene, National Institute of Health, to study the problem.

Manufacturing Process

THE process for the manufacture of wool blankets is, briefly, as follows:

Raw wool is received as bales of fleeces; the separate fleeces are opened on a table and the wool from various portions of the fleece is separated into five grades by a wool sorter. The grade wool is passed through a dusting machine that knocks the gross dirt from the wool fibers and the wool then is placed in a five-bowl scouring machine where it passes successively through a soap solution, a solution of soap and soda ash, and, finally, clear water. If the wool is sufficiently free of foreign matter after this process, it is passed through a dryer and then blown through a duct to the baling room. Wool that still contains considerable foreign material after scouring is carbonized by passing it through a bath of approximately 5% sulfuric acid. It may then be rescoured, dried, and blown to the baling room.

Bales of wool are taken to the stock room of the dye house as needed. Wool is dyed in Franklin process kettles under 5 to 8 pounds pressure at about 220° F. The dye bath for khaki dyeing consists of sodium dichromate as a mordant, acetic acid, an anti-felting agent, and dyestuffs. After dyeing, the wool is washed in water, dryed, and transported to the wool room for storage in bins until needed.

From the wool room, the dyed wool is dropped to the blending floor of the picker room. Here the wool is spread in layers and then passed through a blending machine where it is blended and oiled with an emulsion consisting of sulfonated mineral and vegetable oils. The blended wool is taken to the carding room where it is placed in carding machines which card the wool, twist it into a loose yarn, and wind it on spools. These spools of yarn are taken to the spinning room where they are twisted into a thread on ring spinning or mule spinning machines, and wound on bobbins. The bobbins then go to the weaving rooms where the wool thread is woven into a fabric, such as blanket material. The woven material then goes to the burling room for inspection for defects, then to the washing and fulling room.

In the wash room the blanket material is washed in a solution of soap and soda ash in special washing or fulling machines. After washing, the blanket material is rinsed and dryed in a dryer, and girls known as speckers examine the material again for defects. The blanket material is then passed through shearing machines to remove loose clumps of wool and sent to the finishing room. In the finishing room, the blanket material is put through napping machines, cut, hemmed, stenciled (military insignia), folded, and packed for shipment.

Dermatitis

BETWEEN July 1 and October 15, 1941, 133 cases of dermatitis occurred among the employees of the mill, the number being greatest during the hot summer months and decreasing with the cooler weather. It is impossible to say how many of these cases were actually of occupational origin. At the time of this study only 32 cases were available for examination. The distribution of the 32 in the various departments of the mill paralleled that of the total 133; that is, the card room had the highest percentage of workers affected, the dye house the next highest proportion, and so on. It is presumed, therefore, that the cases examined were representative of the whole group.

Of the 32 persons examined, 11 had no dermatitis at the time of examination and, from the description, distribution, and transiency of their eruption, seven of these were considered not to have had an occupational dermatitis. Lack of positive reactions to any one of the eight patch tests applied to these seven individuals supports this impression. The remaining four who had no dermatitis at the time of the examination gave positive reactions to one or more of the patch tests with the substances that they contacted in the course of their work. Therefore, they may have had occupational dermatitis. In addition to these, two individuals had dermatoses at the time of examination which were not

TABLE II.
RESULTS OF PATCH TESTS PERFORMED ON EMPLOYEES HAVING OR GIVING A HISTORY OF HAVING DERMATOSES CONSIDERED TO BE OCCUPATIONAL

Patient Number	Patient	Employed	Occupation	Dermatitis began	PATCH TEST RESULTS[1]									
					a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
1	N. S.	14 yrs.	Card room	8 mos. ago	−+	−	−	−	−	−	−	−	−	−
2	M. K.	1 yr.	Card room	11 mos. ago	0	++	0	0	0	0	+	0	−	−
3	C. G.	8 mos.	Card room	2 mos. ago	0	±	0	0	0	0	0	0	−	−
4	W. C.	1 yr.	Card room	6 wks. ago	0	0	0	0	0	0	++	0	−	−
5	J. S.	1 yr.	Card room	3½ wks. ago	−	0	−	−	−	0	0	−	−	−
6	G. W.	12 yrs.	Card room	6 wks. ago	0	0	Lost	0	0	Lost	0	0	−	−
7	J. B.	3 yrs.	Card room	3 wks. ago	0	0	0	0	0	0	++	0	−	−
8	G. S.	2 yrs.	Dye house	1 mo. ago	0	0	+	0	0	0	0	0	−	−
9	C. Ham.	10 yrs.	Dye house	1 yr. ago	+	+	++	0	0	0	0	0	−	−
10	R. V.	1 yr. 3 mos.	Fuller	1 yr. ago	+	+	++	0	0	0	0	0	−	−
11	S. P.	1 yr. 4 mos.	Spinner	1 mo. ago	±	+	0	0	0	0	Lost	0	−	−
12	M. V. H.	8 yrs.	Spinner	5 wks. ago	±	±	0	0	0	++	++	0	−	−
13	G. B.	12 yrs.	Spinner	4 mos. ago	0	0	0	0	0	0	0	±	−	−
14	R. M.	1 yr. 4 mos.	Waste room	5 wks. ago	0	0	+	0	0	0	0	0	−	−
15	L. C.	6 mos.	Hauling bobbin	2 mos. ago	0	0	0	+++	0	0	++	+	−	−
16	M. H.	30 yrs.	Weaver	1 wk. ago	0	0	0	0	0	0	++	0	−	−
17	E. P.	4 yrs.	Wash room	8 mos. ago	−	−	+++	−	−	−	−	−	+	0
18	F. P.	22 yrs.	Wash room	6 yrs. ago	−	−	+++	−	−	−	−	−	+++	++
19	C. Hal.	1 yr. 4 mos.	Wash room	1 yr. ago	−	−	++	−	−	−	−	−	++	+++
No Eruption at time of Examination														
20	C. R.	3 yrs.	Card room	2 mos. ago	0	0	+	0	0	0	+	0	−	−
21	H. L.	14 yrs.	Nap room	4 mos. ago	0	0	++	0	0	0	0	0	−	−
22	H. F.	1 yr. 6 mos.	Wool room	3 mos. ago	±	±	0	0	0	0	0	0	−	−
23	R. H.	15 yrs.	Burling room	10 mos. ago	++	++	0	0	0	0	0	0	−	−

[1] Patch test materials consisted of: (*a*) Khaki dyed wool; (*b*) Khaki dyed wool from the card room; (*c*) 3% solution of sodium dichromate; (*d*) mixture of dyes used in upholstery dyeing; (*e*) Khaki dyes; (*f*) anti-fading agent; (*g*) Penetro; (*h*) oil emulsion used in blending process; (*i*) Olate soap (3.9%) and soda ash (1.6%) as used in wash room; (*j*) same as (*h*) after blanket fabric is washed.

considered to be of occupational origin. One of these had a folliculitis of the axillae, and the other had an active fungus infection of the feet accompanied by what appeared to be a dermatophytide of the left thenar eminence. Neither of these patients gave a positive reaction to any of the eight patch tests applied.

In Table II, data are given on the 23 employees thought to have had occupational dermatoses, showing their occupation, the time of onset of the dermatitis, and the results of patch tests performed. Patch test materials were chosen so as to include the various substances used in the blanket manufacturing process which might be responsible for dermatitis.* Of the various patch test materials used, only those lettered *h*, *i*, and *j* in Table II were not possible causes of the dermatitis of all the patients examined. The oil emulsion used in the blending process, *h*, is applied to the wool in the blending machine, and, therefore, the dye house and wool room workers have no contact with this material. Patch test materials *i* and *j* are encountered in the wash and fulling rooms only. The soap and soda ash solution is applied to the blanket material in the washers; and the fabric is then rinsed and dried before it leaves this room. Washers and fullers, therefore, are the only persons exposed to the washing solution. These facts must be borne in mind when reading Table II.

The percentage of positive reactions to each of the patch test materials is as follows:

Patch test material*	Percentage positive reactions	Percentage positive and questionable reactions
a	21.1	36.9
b	26.3	42.1
c	45.0	45.0
d	5.6	5.6
e	0.0	0.0
f	5.6	5.6
g	38.9	38.9
h	6.7	13.3
i	100.0	100.0
j	66.7	66.7

Since the three wash room workers gave positive reactions to patch tests with the soap and soda ash solution, *i*, and two of them gave reactions to the washing solution in which blanket material had been washed, *j* (which contains a lower concentration of alkali), these patch test materials gave the highest percentages of positive reactions. Judging from this fact and the fact of their strong alkali content, it is concluded that they are probably primary skin irritants.

Sodium dichromate gave the highest percentage of positive reactions among the eight materials used for patch testing all the workmen examined. It is interesting to note, however, that if the three wash room workers are excluded (since they were all patch tested with and gave positive reactions to *c*) the percentage of positive reactions is reduced to 35.3%. The next highest percentage of definitely positive reactions occurred with *g*, the wetting agent used in the dye bath. If questionable reactions are also included, then *b* would supersede *g* in the percentage of reactions. However, patch test materials *a* and *b* both contain more than one substance which might cause dermatitis, including sodium dichromate and the wetting agent, and therefore should not be compared to single compounds. There was only a single definitely positive reaction to each of the patch materials consisting of upholstery dyes, the anti-felting agent, and the oil emulsion (*c*, *e* and *h*). There were no reactions to the patch tests with the actual dyes used on the blankets. From this it appears that sodium dichromate and the wetting agent in the dye bath are the principal causes of dermatitis throughout the plant (with the exception of the wash room). If the story given by the management is true—that the only change in the manufacturing process was the increase in the strength of the dichromate mordant from 0.5 to 3%—then this must account for the increase in the number of cases.

Referring again to Table I, it is interesting to note the results of patch tests in different occupational groups. Eight of the individuals included in Table II work in the card room. Two of these, patients No. 1 and No. 6, had dermatoses so extensive and active at the time of examination that it was thought inadvisable to apply the full series of patch tests. Patient No. 1 gave a positive reaction to a simple patch test with khaki-dyed wool. This, of course, does not indicate the exact cause of his dermatitis since the patch test material contains sodium dichromate, khaki dyes, the anti-felting agent, the wetting agent, and wool itself, and the patient may be sensitive to one or more of these. It is interesting that patient No. 5 did not react to any of the three patch tests applied to his skin, *b*, *f*

*For materials used see footnote 1, Table II.

and *g*. Clinically he had typical chrome ulcers and yet he did not have cutaneous hypersensitivity to the amount of chromium available in the dyed wool of patch test *b*. The patch test results support the clinical observation that the dermatitis in this particular instance was due to the action of chromium as a primary irritant and not as a skin sensitizer.

Only one of the remaining six card room workers, patient No. 20, gave a positive reaction to the patch test with sodium dichromate. Four of these six, Nos. 2, 4, 7, and 20, gave positive reactions to patch test *g*, the wetting agent used in the dye bath. One of the remaining two, patient No. 3, gave a questionable reaction to patch test *b*, and the other, patient No. 6, gave no reactions. The latter patient lost two of his patch tests sometime between the time of application and removal, however, and he might have reacted to one of these had they remained in place. It appears from these results, then, that dermatitis among card room workers is most apt to result from sensitivity to the wetting agent used in the dye bath. Chromium as a cause of sensitivity and irritation is next in importance in this group.

The two dye house workers reacted to sodium dichromate. One of them, patient No. 9, also reacted to patch tests *a* and *b* which may be assumed to be a result of his chromate sensitivity.

The three spinners tested gave less uniform results. One patient, No. 11, gave a positive reaction to patch test *b* and a questionable reaction to *a*. Unfortunately this patient lost patch test *g* which, if positive, would have explained his reactions as being due to sensitivity to the wetting agent. Another of these patients gave questionable reactions to *a* and *b* patch tests, and definitely positive reactions to the wetting agent and the anti-felting agent, *g* and *f* respectively. The third gave a questionable reaction to the oil emulsion. None of these spinners showed chromate sensitivity.

Comment has already been made on the three wash room workers, all of whom gave positive reactions to the washing solution of soap and soda ash. It is interesting to note that all three gave strong reactions to the patch tests with sodium dichromate as well. Patient No. 11 is a fuller who had not worked in the wash room for several months because of a persistent dermatitis. Clinically he appeared to have a dermatophytide of his hands with an active fungus infection of his feet. He gave a strong positive reaction to sodium dichromate and milder reactions to patch tests *a* and *b* which were probably due to his chromate sensitivity. This raises the question as to whether in this case a contact dermatitis was superimposed on a dermatophytide, and whether recovery at present is not entirely dependent upon eliminating the fungus infection.

The three remaining patients, cases Nos. 14, 15, and 16, who had dermatoses at the time of examination, were all from different departments. The waste room worker, case No. 14, showed sensitivity to sodium dichromate. The worker engaged in hauling bobbins, No. 15, showed sensitivity to both the wetting agent and the oil emulsion, and a strongly positive reaction to the upholstery dyes. This is the only instance of sensitivity to any of the dyes used in patch tests *d* and *e;* and it is possible that an error may have been made in recording the results on this patient since he did not appear to have his tests read at the same time as the others, and the results were read and recorded later by the plant physician (not a dermatologist).

Among those workers who were free of dermatitis at the time of examination but who gave a history of a dermatitis that was thought to be occupational, three were from departments that have not been mentioned as yet. One patient, No. 21, proved to be sensitive to sodium dichromate on patch testing. The one individual from the wool room, No. 22, gave questionable reactions to patch tests *a* and *b* only. The distribution of the dermatitis experienced by this patient three months earlier suggested contact dermatitis from handling the dyed wool; but the short duration of the eruption and its failure to recur while the worker was still on the job make such a diagnosis questionable. The one person from the burling room gave definitely positive reactions to patch tests *a* and *b* only. It is difficult to explain the patch test reactions in this patient since all other patch tests were negative. Sensitivity to wool itself would explain the reactions; but it would be difficult to reconcile that with freedom from dermatitis at her present work of inspecting upholstery fabrics. It is known, also, that a combination of compounds may induce cutaneous hypersensitivity, and yet the individual compounds will induce no skin reaction on patch tests. It may be that the combination of wool, khaki dye, wetting agent, and the anti-felting agent provides a sensitizing group of compounds for this patient.

Summary and Conclusions

AN increase in the incidence of dermatitis among employees of a woolen mill occurred soon after the manufacture of blankets for the armed forces was begun. The only essential change in the manufacturing process was the increase in the concentration of the mordanting solution of sodium dichromate in the dye bath from 0.5% to 3%.

There have been 133 cases of dermatitis among employees of the plant since July 1, 1941 (about three and a half months). At the time of this study 32 individuals who had, or had had, dermatoses thought to be of occupational origin, were available for study. Nine of these cases, on examination, were considered to be non-occupational in origin.

Patch tests were performed with the various materials used in the process of manufacturing woolen fabrics. The results of these patch tests indicate that cutaneous hypersensitivity to sodium dichromate and the wetting agent used in the dye bath was responsible for the majority of cases of occupational dermatitis.

The results of the patch tests suggest that cutaneous hypersensitivity to the wetting agent is responsible for most of the cases of dermatitis among card room workers, and that cutaneous hypersensitivity to sodium dichromate accounts for most of the cases of dermatitis among dye house workers. All wash room workers reacted to patch tests with the washing solution, and all of them were sensitive to sodium dichromate.

Patients from other departments showed less uniformity in their patch test results. None of the spinners, however, was sensitive to sodium dichromate.

The exposure to 3% dichromate solution produced chrome ulcers in some workers and chrome sensitivity in others who had not been previously affected when exposed to 0.5 dichromate solution.

Recommendations

IT MAY be possible that changes can be made in the dyeing process to minimize the dermatitis hazard from the mordant solution and the wetting agent. Suggested changes would be to reduce the percentage of dichromate and wetting agent added to the dye bath, or to use mechanical means for handling batches of dyed wool and avoid skin contact.

2. Workmen in the dye house should wear long, wide rubber aprons, long rubber gauntlets, and rubber boots to minimize contact with the solutions used in the dye vat and with the wet wool.

3. All dye house workers should be required to take a cleansing shower bath at the end of the day's work. Clean work clothes should be provided for the workers twice a week.

4. Carders should also wear rubber aprons, and sleeves of some impervious material (such as Pliofilm, Vinylite, Koroseal), and leather gloves. They should take cleansing showers after work and have clean work clothes provided twice a week. If the wool could be handled with a specially designed tool similar to a many-pronged ice tong or a pitch fork, much of the contact with the wool which now occurs would be eliminated. Washing facilities should be provided for the strippers of the carding machines so that they can wash hands, forearms, and face whenever they finish stripping a machine.

5. Workers in the wash room should wear long rubber aprons, rubber gauntlets, impervious sleeves, and rubber boots to protect them from the strong alkaline solution. They should take cleansing showers after work and apply to their hands a mixture of 70% anhydrous lanolin and castor oil to help replace the fat taken out of the skin by the strong alkaline washing solution.

6. Specific recommendations cannot be given for the prevention of dermatitis in other departments of the mill, since each case must be investigated individually, the cause of the dermatitis ascertained, and the indicated corrective measures instituted. As an example, one of the spinners examined, No. 11, had a dermatitis of the left buttock. Upon questioning, it was discovered that this individual had the habit of picking up waste wool from the floor around his spinning machine and putting it in his left hip pocket. Patch tests revealed that he was sensitive to the dyed wool. The corrective measures here were obvious.

Health Examinations of Executives

HALSTEAD G. MURRAY, M.D.,
Dennison Manufacturing Company,
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FOR the past 22 years annual health examinations have been given the executives of the Dennison Manufacturing Company. This work was previously reported,[1] and it is possible that enough industrialists and industrial physicians are interested to read a further report on it 12 years later.

The group examined consists of 145 men, including the directors of the company, division managers, department heads, foremen, assistant foremen and various specialists. Some of these men have been in the group for 22 years, others from two to 15 years. This study was made to determine, if possible, what benefits were derived from these examinations, and to gather whatever vital statistics might prove valuable and interesting in a group such as these men constituted.

The health examinations are as complete as is practical in industry, consisting of a physical examination, a check-up on diet, health habits, exercise, etc., and such tests and analyses as seem necessary, with special tests where indicated. The objective is to keep the executive group in a healthier, more physically fit condition than would otherwise be the case.

The writer, having made these examinations for the past 20 years, is fully convinced of their benefits as an aid to the preventive medicine practiced in this industrial establishment. The belief that health examinations of groups is a very worthwhile procedure is substantiated by the fact that many organizations carry them out on a yearly basis, namely, life insurance companies, college student health departments and medical societies.

One factor brought out in this study that may also substantiate the belief that yearly health examinations are worthwhile, was that the average amount of lost time on account of illness for these executives was less than one day per person per year.

Daniels, of the Hood Rubber Company, in Watertown, Massachusetts, reports in a personal communication that the average number of days lost per man in his industry is 2.9 days per year for illness. Other figures show an average of eight days lost time per man, nine-tenths of which was due to illness.[2]

This Dennison executive group for the past four years has averaged less than one day lost time per person per year for illness. Thus it would seem that a regularly examined group does lose less time than an unexamined group. If annual physical examinations do cut down lost time from illness, a yearly examination for every worker in the country would be worthwhile.

The examination takes one hour to complete and is the general type of physical examination usually given, with minor variations. It includes, at the time of the first examination, the family history, personal history and the health record for the preceding year. Each man in the group has had a Wassermann test, complete dental x-rays every two years, all correctible visual defects corrected, yearly urinalysis, yearly hemoglobin tests, yearly vital capacity tests and hand dynamometer test.

The following figures were taken from the examination records of the 145 men examined in 1941:

WEIGHT—52 overweight; 15 underweight; 78 within normal limits.

VISION—94 men wore glasses; 51 did not need glasses for any purpose.

POSTURE—35 men could easily improve their posture. All postural defects were correctible to a large degree—lack of desire to maintain good posture seemed to be the only stumbling block to improvement for this group.

HEARING—27 men had some degree of defective hearing, not correctible, but yearly attention by an aurist would probably maintain the amount of hearing present.

TEETH—31 men could have had further dental work done to improve their teeth at the time of this examination—there was no evidence of gross caries.

BLOOD PRESSURE—11 men with a pressure well above 140 systolic with a diastolic pressure above 100. One man only had any subjective symptoms of hypertension. There were 15 men with low blood pressure, i.e., below 100 systolic—these low readings were practically the same for a period of years and the readings only mean that the low pressures are normal for these men.

VITAL CAPACITY tests measured by a spirometer are done at each examination—the value of this test seem to be as to whether the men maintain the same reading each year. A drop in the reading usually means some functional or structural defect in the respiratory or cardiovascular systems.

Skin disease was found in 21 of the examinees. These were either mild cases of psoriasis or mild fungus infections, hardly of enough consequence to treat regularly, as the bother of treatment would be more troublesome than the minor irritations of the skin diseases, although in each case medication has been given a trial.

There were three men with hernias, preferring to wear trusses than to have an operation done for repair of the condition.

[1] *J.A.M.A.*, September 1, 1928, Vol. 91, pp. 627-629.

[2] Manual on Industrial Health, Massachusetts Committee on Public Safety, June, 1942.

Diet and Health Habits

THIRTY-TWO of the group took no exercise other than that obtained in their daily routines at their work. Their health seemed to be just as good as those who did take regular exercise though, undoubtedly, they are not as physically fit. A few of the men over-indulged in physical exercise during their week-ends.

As to smoking, 70 men of the 145 examined use tobacco. More than half of these 70 men smoke excessively, that is 20 cigarettes or more daily or six or seven cigars daily. From all the literature available on the subject, 10 cigarettes a day for the average man is all that can be used without definitely affecting the health of the smoker. It is surprising to find that more than half of the group of men do not smoke at all.

As to sleep, 15 of the group take less than eight hours rest each night; evidently they are able to get along very well on six or seven hours' sleep.

The group was particularly free of headaches— only eight of the men were bothered at all with headaches throughout the year.

Gastro-intestinal disturbances were also small in number; 11 men were troubled with constipation, but not to any serious degree. As to eating habits, 20 men eat regularly between meals; 14 men admitted being very fast eaters; only seven said they were ever bothered with digestive disturbances. Fast eating of itself did not seem to be a cause of any form of indigestion.

Twelve of the men have at present, or have recovered from, serious organic disease. They all seemed to be in fairly good health at the time of examination, and quite able to carry on their various duties as well as the other men examined. Sixty-five of the 145 are over 40 years of age and, except for half of this number being considerably overweight, their health would be considered very good.

As to diet, except for a few men who are on restricted diets, the meals of the group are regular as to time, well prepared, and the food well chosen as to variety and nutritional value. The majority eat a small breakfast of fruit juice, cereal or eggs, toast and coffee; a light lunch of milk, tea or coffee, sandwiches and a light dessert; dinner, eaten at night for practically 90% of the group, consists of meat, potatoes, two vegetables (one cooked, one raw), bread and butter, dessert (often fresh fruit), coffee, tea or milk, and cheese.

These examinations are certainly no panacea for the prevention of disease or for prolonging life. The idea is to keep men as well and as fit as possible while alive in order to enjoy life as much as possible. When enough of these health examinations have been made over a long period of time and when the findings of these examinations can be compared with autopsy disclosures, some basic findings in pre-clinical medicine will be discovered. For instance, in this small group, over a period of 20 years, examination records and the deaths or serious illnesses of some of the men, young and middle aged, seem to indicate that men with systolic blood pressure above the average for their age are much more likely to develop disease of the cardiovascular system and to have an earlier mortality age than persons with low or normal blood pressures.

Some of the benefits to be derived from the health examinations are:

1. Correction by the group of minor correctible defects.

2. Corrections or additions to their diets, to improve the balance of the diet; a yearly quiz on health habits brings to the men's attention the basic health habits essential to a healthy body.

3. The yearly examination may catch the pre-clinical signs and symptoms of disease and appropriate measures may be taken to prevent, in some instances, chronic or serious disease from developing.

4. The comparison each year of the physical condition with past years, the results of various tests compared with previous results of these tests, all help to estimate the general health of the individual.

5. The regularity of the examination gives each examinee an opportunity to discuss freely with a physician any health problem which may be bothering or disturbing to himself, no matter how simple it may appear to be.

It would seem logical in these strenuous times, with executives having more work to do, greater problems to solve, and other factors adding to the stress and strain of business, that at least one yearly check-up on a man's physical condition, living habits and the past year's health record should have enough economic value to justify yearly health examinations for all executives in industry.

Treatment of Burns of the Skin Due to Molten Magnesium

J. ALFRED WILSON, M.D.,
and
BIRGER EGEBERG, D.Sc.,
International Silver Company, Meriden, Connecticut

BURNS of factory workmen by molten magnesium alloy have lately caused considerable concern. These burns are very slow healing, often taking weeks or months for the workmen to recover. Magnesium belongs in the group of so-called light metals along with aluminum, beryllium and others. Magnesium burns are entirely different from burns caused by the heavier metals such as iron, copper, zinc, and their alloys. Burns by the heavy metals heal readily, depending only on how much tissue was killed by the heat of the hot metal. These we have treated for many years.

The problem of magnesium alloy burns has been studied in the metallurgical laboratories of the International Silver Company, and we wish to report in this paper the results of these studies. First we tried to develop some neutralizing agent whereby the deleterious effects of the magnesium in the tissues could be neutralized. We were unable to find any chemical agent to perform this work, and we then used a simple procedure which we wish to describe here. By this procedure we have been able to have magnesium burns recover just as quickly as burns by the heavy metals.

Magnesium alloy containing about 95% metallic magnesium is heated to the molten state and poured into molds. The metal is cooled, forming tubes 14 in. long and with walls ⅜-in. thick. This was a new procedure, and despite the utmost care accidents have happened and workmen have been burned. The original burns are often very small and if not treated at once they form small ulcers. These ulcers gradually enlarge and over a period of weeks they may become several times larger than the original burns. The floor of the ulcer is irregular and made up of several reddish brown small raised areas called by some writers granulomatous tubercles. The edges are not punched out and they are not very painful.

The reason for the development of these chronic granulomatous ulcers is given by McCord, et al., who quote Bufe: "Oxidation processes in the cells are disturbed and the recuperative powers of the tissues

lowered as a result of the damage from the gas or other actions of the metal or its decomposition products." McCord and his associates studied the action of fine magnesium particles in suspension injected into laboratory animals. They found gas was formed in the animal tissues, and from this study advised wide excision of the magnesium particles should they become accidentally imbedded in the tisues of a workman.

Some of the molten magnesium remains in the burned area of the skin. This was proved by (E) who made a chemical examination of the burned tissue. Magnesium was present in this material. We think some of the magnesium becomes incorporated in the body cells near the burned area and their normal physiological action is interfered with.

The magnesium particles are at times disseminated by the lymphatic system. We saw one man with a burn of the first joint of the right thumb; in two or three weeks a lesion developed on the mid forearm. The forearm was incised and drained by his private physician. The burned area on the thumb was not treated by us.

Treatment

THE burned areas and surrounding skin were painted with a 2% solution of mercurochrome. The area was then anesthetized by injection of 2% novacain. When anesthesia was obtained the burned tissues were scraped away until normal tissue was obtained. None of the burns was through the skin, and it was only necessary to remove the outer layers of skin. Very small burns were frozen by ethyl chloride and scraped clean. The size of the burned areas varied from the size of the head of a pin up to one burn of a shoulder that was two inches in diameter.

All healed completely in about two weeks, and no infections occurred. The denuded areas, if large, were dressed with 5% sulfanilamide ointment for two days. They then were left uncovered.

The denuded areas looked normal and entirely different from the chronic slow healing lesions of the untreated magnesium burns.

Summary

BURNS of the skin by molten magnesium form very slow-healing granulomatous ulcers.

2. Metallic magnesium interferes with the normal physiology of the body cells, causing an interference in the normal repair process of injuries.

3. Prompt removal of the metallic magnesium, whether in the form of foreign body spicules, powder or burns, allows ordinary healing to take place.

4. In the case of magnesium burns the area is anesthetized, and the burned tissues completely removed.

5. Accidental burns by incendiary bombs of the civilian population should be treated in the same manner.

References

MCCORD, CAREY P., PRENDERGAST, JOHN J., MEEK, STUART F., and HARROLD, GORDON P.: Chemical Gas Gangrene from Metallic Magnesium. *Industrial Medicine*, 11:2, 71-76, (February) 1942.

Massachusetts Committee

—Public Spirit: Personal Ability—

HEADED by MANFRED BOWDITCH, Director, Division of Occupational Hygiene, Department of Labor and Industries, the Massachusetts Committee on Industrial Health—subcommittee of the Committee on Public Safety—"is campaigning for a sound health program throughout the length and breadth of Massachusetts' industrial war front." Specific objectives: (1) To gather and correlate medical, nursing, nutritional, chemical, engineering and other scientific and practically developed information which will be he'pful in maintaining the health of workers in industry and business; and (2) to make such information available to employers and employees alike, to assist both groups in its application.

Massachusetts Public Safety Committee's Subcommittee on Industrial Health

Front row (left to right): Dr. Alton S. Pope; Elna I. Perkins; Hilga S. Nelson, R.N.; Catherine R. Dempsey, R.N.; and Dr. Louis R. Daniels. Rear (left to right): Curtis M. Hilliard; I. W. Reynolds; Manfred Bowditch, Chairman of the Committee; Professor Philip Drinker; Dr. I. R. Tabershaw; Alfred Coulthard; and Dr. Daniel L. Lynch. Absent: Quindara O. Dodge, Maurice F. Kiley, and Ernest F. Stockwell

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ROBERT H. FLINN, M.D.,
Passed Assistant Surgeon,
U. S. Public Health Service

IN AMERICAN industries generally, men lose eight working days per year because of illness, and women lose 11 days. This makes a staggering total in terms of total war production. Much of this illness is preventable by the application of modern preventive medicine. In industries offering unusual health or accident hazards, the amount of time lost is considerably increased by occupational disease and accidental injuries. A progressive industrial hygiene program has proved its worth during recent years in many industries by increasing production, and by decreasing absenteeism due to illness and accidents, the spoilage of materials, and labor turnover. Medical and engineering services are supplementary in achieving this end. The medical phases of an industrial hygiene program are outlined as follows:

Personnel.—Physicians, dentists, industrial nurses, medical technicians. Medical and nursing services should be on a full-time basis for all shifts. The medical director should be directly responsible to the general manager.

Facilities.—Adequate dispensary and hospital space and equipment. First-aid stations where necessary. Ambulances, stretchers, and resuscitory apparatus.

Services.—(1) Complete *treatment* of all *occupational diseases* and *injuries.*

2. *Emergency* medical and surgical treatment of *non-occupational illnesses* in order to keep workers with minor illnesses on the job. In certain isolated areas this scope of emergency medical care will necessarily be increased.

3. *Advice* to workers as necessary regarding the necessity of obtaining adequate medical, dental, and nursing care.

4. Careful pre-employement *placement examinations,* including urinalysis and serodiagnostic tests, not for the purpose of selecting only applicants in the best physical condition, but for the proper placement of all types of workers at jobs they can do safely and efficiently. Most workers now being rejected can and must be put to work to further the war effort.

5. *Periodic physical examinations,* no less thorough than the pre-employment examination, for finding diseases or defects in early, correctible stages. These should be made annually, and should include advice to the worker on health maintenance.

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6. *Special examinations*, including a questionnaire, physical examination, and necessary laboratory work, at regular intervals for workers in toxic exposures in order to detect early signs of occupational disease, and to call attention to the need of controlling the hazard. Men with special responsibilities, such as cranemen and guards, require frequent examinations.

7. *Absentees* from work should be required to clear through the dispensary to insure their being fit to work safely and efficiently.

8. *Sickness records* should be maintained and analyzed monthly to study the nature and cause of excessive illness, in order that preventive measures may be applied.

9. Regular *inspection* of the plant to become familiar with working conditions, and to detect uncontrolled health and accident hazards. This should be in close cooperation with the safety department. Insanitary conditions should also be noted and corrected.

10. *Immunization* of workers against smallpox and typhoid fever should be done, so far as practicable.

11. *Health activity committees* should be organized in order to promote an effective health program.

12. The *safety program* demands the close cooperation of the medical department especially in the treatment and recording of injuries. The medical department should participate actively in the activities of the central safety committee.

13. *Venereal disease* can be effectively controlled by seeing that the workers receive adequate treatment. Workers with syphilis should be employed providing they take adequate treatment, the disease is not in a communicable stage, and there are no otherwise disqualifying complications.

14. *Nutritional supervision* and education are important activities of the medical service. Well-balanced meals at low cost should be provided all workers at mid-shift. These should be eaten away from the workroom whenever possible. Food wagons with essential foods such as fruit juices, milk, and nutritious sandwiches should tour the plant between meals. All white bread and pastry should be made from enriched flour. Workers and their families should be instructed in the principles of nutrition. Workers in toxic exposures especially require an adequate diet.

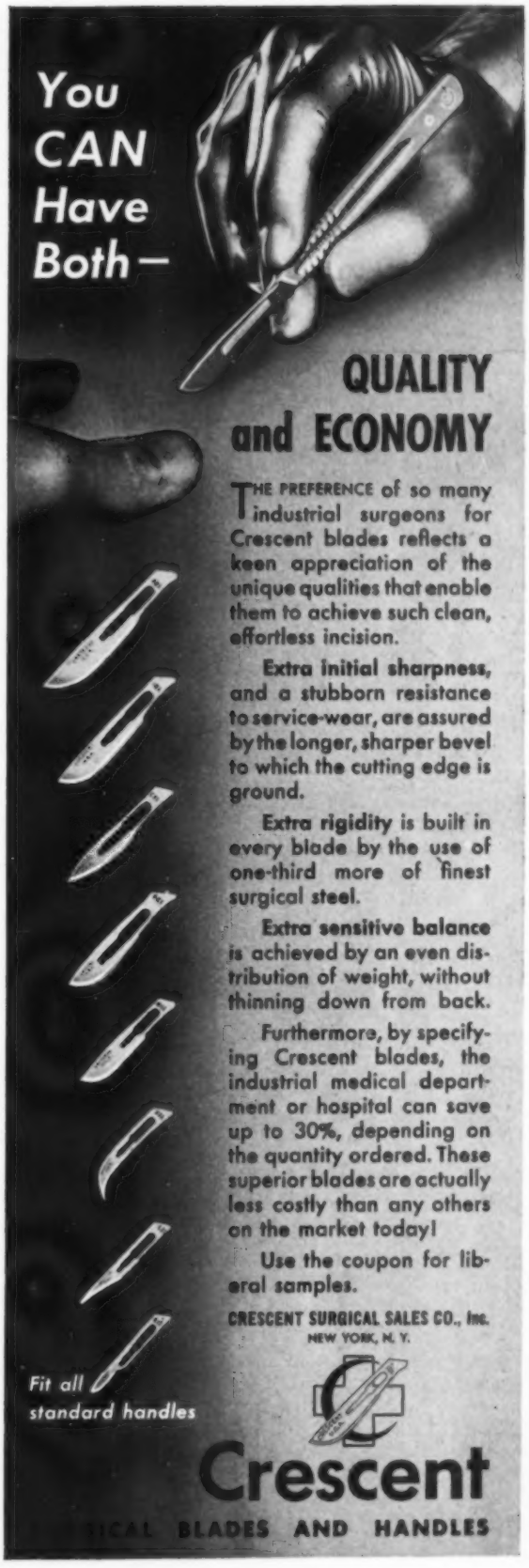
15. The frequent *rotation* of shifts should be discouraged as it takes several weeks for workers to readjust their eating and sleeping habits. Nurses at first aid stations should be rotated at the same time as the workers to promote efficiency.

16. Detailed plans should be made for rapid and efficient care of large numbers of injured workers in the event of a *disaster*. These plans should be closely coordinated with the local Emergency Medical Services of the Office of Civilian Defense.

17. Close cooperation should be maintained with the *welfare department* in promoting the adoption of group life and sickness insurance, mutual savings societies, a recreational program, and advice to workers on personal problems. Women with domestic responsibilities require special consideration. Visiting nurses can perform a real service in furthering employee welfare.

18. Close relationship should be maintained with the local and state *health departments* in the interest of community health, and the prevention and control of epidemic diseases, tuberculosis, and syphilis.

19. *Health education* is a primary function. Every effort should be made by personal contacts, talks, plant newspaper, posters, pamphlets, and motion pictures to instruct the workers and their families in the principles of personal hygiene, nutrition, prevention of communicable diseases, and sanitation.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What Every Doctor Should Know

DR. CASSIUS H. WATSON and DR. J. J. WITTMER are alumni of Long Island College of Medicine; and DR. WATSON is a Trustee. A suggestion of DR. WATSON'S last spring that the College should do something to help meet the problem of industrial health training on the post-graduate level has grown into the "orientation course" outlined on pages 419-422.

Obviously it is impossible to make any adequate presentation of this subject in two weeks of afternoon and evening sessions. This realization has undoubtedly inhibited the scope and ambitions of a good many plans. But it did not have that effect on this one; some disciple of Emerson on the Medical Advisory Committee remembered "Low aim, not failure, is the crime"; and the aim of this group is as high and the scope of its enterprise as all-embracing as if the course were a curriculum major. Indeed, if it were such, it could not have been any more carefully or comprehensively planned. The mere reading of the arrangement and breakdown of the subjects is an "orientation" in itself. The College, however, while it hopes and feels that its course will be a real contribution, is not expecting too much. But we believe the brains and experience that have planned so well, will deliver just as ably. The values to the matriculant will be there for him to get; they exist more abundantly than in any similar undertaking heretofore; and the very intensiveness with which they will need to be given inspires to maximum intensity in the interest with which they will be received. In addition, the backgrounds and accumulated experiences of those who have it in charge are, in themselves, a guarantee that whoever enrolls with intent to learn can come away with a liberal education.

Industrial Health Manual

MANFRED BOWDITCH, Director, Massachusetts Division of Occupational Hygiene, Department of Labor and Industries, sends us the "Manual on Industrial Health for Defense" prepared by the State Committee on Industrial Health, of which he is the Chairman (page 437). The Manual has 32 pages, and, while its announced purpose is to assist local industrial hygiene committees to organize, under local health committees, for the development of their industrial health programs, the contents are excellently adapted for effective use by all those in industry—physicians, nurses, hygienists, safety engineers, managers—who are concerned with industrial ill-health and its many related problems. Following the introduction and a statement of objectives, there are sections on Occupational Disease Prevention; Medical Service; Industrial Nursing Service; Sanitation; Nutrition; Health Education for Workers; Safety; Mental Fatigue and Morale, and Hours of Work—together with a statement by Surgeon-General Parran on "Worker Health on a 24-Hour Schedule." Each section is followed by a list of agencies through which additional and more detailed information may be obtained, and a list of references to periodicals, books and articles which treat of the subject matter. The Manual is issued by the Division of Health and Social Services, 18 Tremont Street, Boston, and is copyrighted by the Massachusetts Committee on Public Safety. It is the first undertaking of the new Committee on Industrial Health. The same kind of enterprise that is evidenced in its form and substance has been applied to its distribution—it is the first comprehensive booklet of the kind to have been given a circulation of more than 25,000 copies among those to whom it will be most useful. It is a key text; and undoubtedly will be equally useful to several times that many more, as it ought to be on the desk of the manager of every industry in the country. We suggest that it be asked for.

Timely Emphasis

THE A.M.A. Council on Industrial Health prepared an "Outline of Procedure for Physicians in Industry," which was published in *J.A.M.A.* six months ago, describing the objectives of industrial health, the functions of physicians in industry, and the new relationships which represent the professional problems encountered in medical supervision over employed groups. This was read by many. But it should be read by more, and re-read by many who have seen it. Toward that end, it is included in these pages (454-455), together with *J.A.M.A.'s* "Current Comment," which also should be emphasized by repetition:

"Medical service in industry can operate efficiently, ethically and scientifically for the best interests of the worker, the employer, official agencies, the medical profession and the community. The industrial physician has obligations to the medical profession at large; the private practitioner is obligated to recognize professional competence in supervising the care of work forces. . . . A physician in community practice should facilitate expansion of his services to meet the requirements of small and medium-sized plants for preventive medicine, surgery and hygiene. In such establishments the application of professional skill and interest is much needed."

Chemotherapy and Surgery

SINCE the introduction of the sulfonamides and the further discovery that local therapy was at times efficacious, there has been a host of papers reporting the topical use of sulfanilamide and sulfathiazole, introduced in pleural, pericardial, peritoneal and joint cavities, and on burned areas or cutaneous infections.

Recently much stress has been placed on the necessity of sterilizing the sulfonamide powder or crystals thus used.

Specific oral and parenteral chemotherapy with these drugs owes much of its clinical success to the relative ease with which effective concentration can be attained and maintained in the blood stream. The National Research Council's subcommittee on surgical infections has recommended the local application of sulfonamides as a light dusting to the wound surface, using not more than 1 gram for each 10 square inches of surface. Thorough cleansing of the wound and adequate debridement are stressed as essential. Local treatment generally should be supplemented by oral administration.

That the sulfonamides such as sulfanilamide, sulfadiazine and sulfathiazole are bacteriostatic is recognized. To what extent they neutralize bacterial exotoxins, affect wound healing and prevent growth of various bacteria in wounds still awaits final evaluation. Certain it is that the use of these compounds will never replace skilful surgery.

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AMERICAN ASSOCIATION of INDUSTRIAL PHYSICIANS and SURGEONS

The Hawaiian Society

THE HAWAIIAN SOCIETY OF INDUSTRIAL PHYSICIANS AND SURGEONS, as you know, is composed almost entirely of physicians on the one Island of Hawaii. However, we hope soon to have this Society on an island-wide basis with every Industrial Physician as a member. On June 5, 1942, a group of representative physicians from all the islands met in Honolulu and formed a Territorial Association of Sugar Plantation Physicians. In the past there has been little combined effort on the part of the medical departments of the many plantations here. We feel that, from an economic and a scientific standpoint, we have lost a lot by not pooling our efforts and information. This we intend to do in the future. The situation here remains about as when I wrote you on April 8, 1942. There is a calm here which we hope will remain forever. Hawaii is naturally quiet, lazy and peaceful, and we hope nothing will change this. Throughout all the islands of the group we continue to try to get our medical emergency set-up in the best order possible. First-aid stations, central clearing stations and emergency hospitals have been established wherever needed. Volunteer staffs are continuing frequent sessions for training and practice. Emergency ambulance squads and litter squads are trained. In general I believe the civilian population of these islands has done an excellent job of preparedness, and, as soon as some additional equipment and supplies already ordered arrive, we should be ready if we are called. As an inhabitant of one of our most important outposts I would like to implore every member of your organization to lend his utmost aid to the general production effort. I feel that none of us has a job more important than anyone else who is doing his best at work that is concerned with the present undertaking.

—H. M. PATTERSON, M.D., Secretary.

DR. CEMAL A. KIPER, one of the new members of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, is a citizen of Turkey, graduated M.D. at Istanboul, came to the United States about three years ago, has a Master's Degree at Harvard School of Public Health, is doing research work at Harvard, and expects, as soon as may be, to return to his native land to become Associate in Hygiene in the School of Hygiene at Ankara. With RALPH W. MCKEE, of the Industrial Hygiene Department, Harvard School of Public Health, his research has included several important studies on carbon disulphide, particularly as to its toxicity, and its absorption and elimination.

Industrial Medicine for Practitioners

THE precipitous current events in the world at large can leave no lingering doubts in the mind of any group or individual that now is the time to "pick up the ball and run"—one should not postpone adjustments, inconveniences or sacrifices that will contribute to the preservation of the nation. The medical profession is fortunately placed in being able to contribute to this purpose in many ways: the younger members of the profession are being called to posts of active military duty; many of the older physicians are returning to hospital and teaching staffs and even to private practice; and the middle-aged doctors—most of whom served in the last war—are experiencing no difficulty in finding opportunities to apply themselves and their skills in all sorts of civilian activities.

Although the members of this middle-aged group are, or soon will be, carrying the heaviest practical burden, they are probably more goaded than other physicians by their inability to participate in a more direct way than that permitted by their physiologic limitations. They are partially compensated by serving on various boards and committees and by more extended tours of practice, but as they find their medical journals devoting more and more space to the military aspects of medicine and surgery, and when they glance at the headlines of the daily press, they must be frequently plagued by their inability to express themselves more concretely in the war effort.

How can these middle-aged physicians remaining in civilian practice intensify their influence in the total drive against impending disaster? A partial answer for many, and a complete answer for some, may be found in the cultivation of an interest in industrial health in their towns and neighborhoods. In Massachusetts, three quarters of the industrial workers are employed by small companies. To date, the development of modern industrial medicine has been chiefly confined to the large plants, with their more serious problems and greater resources; as a result, its application to each and all the hundreds of little shops has been overlooked. Yet many of these small factories are now open night and day, thus exposing thousands of workers to hazards against which they might be very easily protected.

Who is going to cast a preventive eye on this widely dispersed problem? Who could do it more effectively than the local physician—the doctor who is asked to remove the foreign bodies, to suture the lacerations, to soothe the irritated skins, to x-ray the broken bones, to assuage the gastro-intestinal disturbances and to calm the paranoid grievances of the more unstable but nevertheless productive workers? Here is a great untilled field—untilled because it does not lend itself to the wholesale methods that have brought such good results in the larger plants. The acreage is subdivided into hundreds of small plots, each of which must be worked by the hand of the local doctor, who can make himself see the possibilities of industrial accident prevention as plainly as he saw those of diphtheria prevention 20 years ago.

If the local physician needs assistance in this matter, it is already within his reach. For a beginning, he may heed the announcement of the Committee on Industrial Health in this issue of the *Journal*. In the pamphlet there referred to, he will find a series of references and agencies that can help him. He may consult the *Manual of Industrial Health*, which will soon be issued by the Council on Industrial Health of the American Medical Association. He may subscribe to INDUSTRIAL MEDICINE, the official monthly publication of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS. Primarily, however, he should visit the plant or plants where he is occasionally called to serve, and he should do so with a trained, critical and inquisitive eye. Only in this way can he accomplish results, and only in this way can he attract the attention of employers and the more intelligent employees to these results.

The alignment of all plants and factories, regardless of their size, to the modern practice of industrial medicine and hygiene would be a stupendous contribution to the war effort; and its accomplishment is clearly the opportunity of the middle-aged physician who remains in civilian practice.

Editorial, *New England J. Med.*, July 30, 1942.

What Goes on Here?

THAT there is a turbulent disturbance going on under the apparently placid front of the doctors of America may be conceded. While *Occupational Hazards* has purposely refrained from mixing into industrial medical matters, it must necessarily take recognition of facts as they exist and as they affect management.

The same uncertainties of the future which are giving gray hairs to management are to be found among the medical profession. There are grave portents in the offing. A not inconsequential minority of the doctors in the United States favor

Editorial, by IRVING B. HEXTER, Publisher, in *Occupational Hazards*, July, 1942.

medical treatment with a stronger social aspect than has ever been admitted by the American Medical Association.

If industrial medicine is heading towards the left it is time that management be concerned with this trend. Any one of a number of things can happen which will change the relationship between workers and management from the medical point of view.

1. The present activity of the Army and the Navy in supervising industrial medicine and medical care of the workers in their plants and in the plants having their contracts is having a great affect on industry in general.

2. Fewer physicians available for civilian practice and greater need for their services will undoubtedly cause serious consideration of group medical plans.

Apparently, a large group of the ethical medical sector feels that the government has stepped into their little world and in order to prevent further encroachments, they will try to organize their own socio-medical services. The success of the pre-payment hospital plan throughout the country is pointing the way to a further extension of medical care plans. Things that have been discussed in enlightened medical circles include government intervention or legislation which might provide for (a) pre-payment of medical care for social security clients, (b) pre-payment plans for universal hospitalization for all social security clients, (c) or even possibly, a tax-maintained system to provide all health services for all people in the country. Labor organizations, some good and some bad, are beginning to ride the tail of this kite.

Management must be aware of these trends in order that it not catch them unprepared. What is the answer for management? Probably as good a start as any is a relatively simple program which any well run plant should by now have put into effect. Such a plan would include regular weekly visits from a physician experienced in industrial medicine. Such a doctor should give at least a half day to the workers in a plant, and as much more as is necessary. If a plant is of sufficient size there should be an experienced nurse in attendance at all times. A separate dispensary should be set up for accident cases. A health plan should be adopted which includes not only the health of the worker while in the plant, but as far as possible also to take care of the worker out of the plant, in order to prevent absenteeism arising from non-industrial illnesses.

Pre-employment examination is one of the important steps that any plant can take. Periodic examination should be made during worker's employment. The doctor in attendance should not confine his activities to the human body. Either he, or he with the help of a sanitation engineer, should study the plant with the view to eliminating spots which might be foci of infections. Industrial washrooms should be made not only sanitary but inviting. In machine shops steps should be taken for the elimination of industrial dermatitis. Where grinding operations take place adequate ventilation and dust removal systems should be installed. If de-greasing operations are carried on through the use of volatile cleaning substances, such fumes should be removed.

There are very few plants where some bad spot does not exist. These should be cleaned up. It is time that industry awakened to this. It is no longer a benefaction to do this for employees. Today it is an economical necessity. It is a management problem. It is money in or out of the pocket of the plant. It is a question of conservation of manpower. It is a step towards better labor relations. Industry must recognize the fact that the day is not far distant when it will probably be forced to do these things. It is better for industry to clean its own house before the compulsion is forced upon it.

These things are not expensive. The investment is not great, the return is large. The public health departments of the state, city and nation await the cooperation of industry. They are crying for such cooperation. They are itching to be asked to help. Industry only needs to beckon, and any of those agencies will come running. Plants that have instituted such programs have found the dividends large. Now is the time for far-sighted management to act.

—*Continued from page 32.*

000 Federal employees in and around Washington. The special consultant services would also be provided by the Public Health Service.

"Garlic"

EVEN development of new steel alloys, with characteristics demanded by the armed forces, brings health problems. DR. SPOLYAR cites an instance of adding tellurium to steel to make it withstand the rigors of the battlefield. This combination produces a volatile substance with a garlic odor, which is progressively absorbed by the workmen until they are virtually social outcasts and develop toxic illnesses. Experience to deal with this trouble is still in the investigating stage, but engineering and medical control measures are being taken. . . . Fatigue of workers is another problem of those who are pushing the production effort. STANLEY D. PIATEK, assistant personnel director of one of the large Lake county foundries, explains that this wartime fatigue is not the natural result of work. Rather it "is mostly physiological, somewhat psychological, and slightly environmental." He lists some of the causes, among them environment, sound, light, temperature, layout of work, drugs, alcohol, monotony, too much eating and smoking, poor posture, home problems, working hours, general living conditions, irritability and general health. Certain maladies bring fatigue after only little effort, he says. "Industry is seeking to overcome this trouble by prevention of causes where possible, by arousing interest in the workmen and stimulating them by powerful motives, such as patriotism, loyalty, ambition and responsibility."

—*Indianapolis Star*, August 2, 1942.

For Management

INDUSTRY, the magazine owned, edited and published by the Associated Industries of Massachusetts, announces a series of articles on industrial health to appear in successive monthly issues:

"Medical and Nursing Services in Industry."
"Protection Against Toxic Fumes and Gases."
"Dust as a Health Hazard."
"Dermatoses and Their Prevention."
"Wartime Occupational Health Hazards."
"Diet and Nutrition: The Proper Feeding of Workers for Health and Efficiency."
"Mental Fatigue, Morale and Hours of Work."
"Adjustment of Work Conditions for Women in Industry"
"Health Education in the Plant and in the Home."
"Industrial Sanitation."
"Progress in Industrial Health in Massachusetts."

"It is the intent to present these articles in so far as possible in non-technical language, using terms which the layman will clearly understand. Obviously they will not be exhaustive treatises on the particular phases of industrial health that they cover. The purpose, rather, is to give the industrial executive who reads them a better insight into the working of a practical health program as it affects plant efficiency, and point out some of the common dangers that all too often are apt to be overlooked."

THE relation of health workers to the efficiency and expansion of industry which will make for uninterrupted production has been recognized by 12 states which have industrial nurse consultants in the divisions of industrial hygiene for the departments of public health. Missouri has two such nurses in the state health department, and the county of St. Louis has one of its own. But so far as MISS JOAN ZIANO, Illinois' industrial nurse, knows, no other county has one. The states that have one each are, in addition to Illinois, Connecticut, Georgia, Indiana, Kentucky, Michigan, Mississippi, New Jersey, Tennessee, Vermont, and Wisconsin.

—"Women in War Work," *Chicago Tribune*, August 25, 1942.

NEW BOOKS

THE BLOOD BANK, AND THE TECHNIQUE AND THERAPEUTICS OF TRANSFUSIONS. Robert A. Kilduffe and Michael DeBakey. Cloth, 558 pages, $7.50. The C. V. Mosby Company, St. Louis, 1942.

IN VIEW of the increasing interest in "blood banks" and plasma and blood transfusions in general, this book should be of present help in military practice, as well as in civil necessities. The authors have had considerable experience in various clinics and also in the medical corps of the U. S. Army.

The material includes discussion of the history of blood transfusion; rationale, indications, and contra-indications; military aspects of transfusion; special types of transfusion; technique of blood typing and compatibility tests; anomalous blood typing reactions; consideration of donor and recipient; the blood bank; changes occurring in stored blood, including biological changes; plasma transfusions; operation of a blood bank; preparation and transfusion of citrated plasma; preparation and use of dried plasma; methods and technique of transfusion; and complications of blood transfusion.

There are 214 very excellent illustrations serving to show the different kinds of apparatus used in blood transfusions, with modifications of the many types. The references are at the end of each chapter and, in the aggregate, there are almost 2900 of these, over 900 being used in the chapter on rationale, indications, and contra-indications. There is also a well-developed index.

This volume ought to be of considerable interest and help to all those who are doing blood work, and particularly to those who are doing any with respect to civilian and military defense.

ESSENTIALS OF GENERAL SURGERY. Wallace P. Ritchie, Cloth, 813 pages, with 237 illustrations, $8.50. The C. V. Mosby Company, St. Louis.

THE AUTHOR makes no claim that this book is a short cut to a knowledge of surgery, or that it will help the student "to just pass an examination." The material is presented, however, with the hope that it will give the beginning student some basic outline of the important points which he must master, and the advanced student a review by means of which he will be able to recall the more extensive works with which he should have had contact. In this respect the book achieves its purpose very well, for it gives the essentials of surgery in a single volume and at the same time makes no claim of exhausting the subject.

Included in the material are discussions of anesthesia, surgical technique, asepsis, the repair of wounds, mechanical and thermal injuries, hemorrhage and shock, gangrene and peripheral vascular disease, inflammation and infection; tumors, with a consideration of the various parts of the body, including the skin, the lymphatic system, the blood vessels and the peripheral nerves; orthopedic surgery, including fractures, dislocations and amputations; tissue transfer and transplantation; and finally, the surgery of various parts and systems of the body, with an outline of urology.

The author has consulted the major standard textbooks and periodicals, and has been able to reproduce within a single volume the most important procedures and principles, which should be considered as basic for the undergraduate and as a review work for those who are more advanced.

A MANUAL OF BANDAGING, SPLINTING AND STRAPPING. Augustus Thorndike, Jr. Paper, 6¾ x 5¾ inches, 144 pages, $1.50. Lea & Febiger, Philadelphia.

THIS small volume should have great appeal both to the civilian population and to the military because of its subject matter and illustrations, the former covering the dry sterile dressing for clean wounds; septic wound dressing; sprains, strains, and contusions; dislocations and emergency splinting; transportation of fractures; and the use of plaster of Paris and similar bandages in splinting. The illustrations are 117 in number and are many of them full-page size, showing types of bandaging used, methods of application with splints and strapping, and the application of these to various parts of the body.

In the foreword, by Dr. Elliott C. Cutler, is an important message often forgotten by the surgeon: "Surgery is a practical art, and like all arts distinguishes itself from simple craftmanship and manual labor by the precision, dexterity, and, if our medical colleagues will forgive us, by the beauty of its performance. Surgeons, like musicians, take pride in their tools and in the performance of their tasks. . . . To the young surgeon all this is highly essential, for a neat and proper dressing gives much relief to his patients and is a chief means for demonstrating his professional skill and care. Let him remember that a neat dressing often bespeaks a good job beneath."

CARDIAC CLASSICS. Fredrick A. Willius and Thomas E. Keys. Cloth, 858 pages. The C. V. Mosby Company.

THIS is a collection of classic works on the heart and circulation with comprehensive biographic accounts of the 51 authors, ranging through William Harvey, down to the time of Mackenzie, Osler, Herrick, and others. It is especially important because it gives original observations on the part of the older physicians and writers and lays the foundation for many of our teachings of modern times. As stated in the preface, "one cannot read and contemplate the classics without being aroused by a desire to express apologies to the old masters, for there are many moderns who have written certain lines, believed to be original, only to find that the same observations and thoughts were expressed many years before."

Of particular interest to modern practicing physicians will be the contributions on angina pectoris, myocarditis, auricular fibrillation, obstruction of the coronary arteries and similar subjects. The reviewer was particularly intrigued by the findings of Sir James Mackenzie and his descriptions of his own heart difficulties, which are so graphically given.

This book is more than a text because it reflects some of the more personal observations of its contributors and would be a valuable addition, indeed, to the book shelves of any practicing physician; it is especially important to those who are doing work limited to the heart and circulation.

THE FUNDAMENTALS OF NUTRITION. Estelle E. Hawley and Esther E. Maurer-Mast. Cloth, 477 pages, $5.00. Charles C. Thomas, Springfield, Ill.

IN THESE days when the words "calories" and "vitamins" are bandied about so carelessly, it is a pleasure to see an authoritative work of this sort, including a consideration of metabolism, classifications of foods and energy requirements, normal diet, low cost meals, diet therapy in different types of diseases, diet planning, and miscellaneous data. Not the least valuable will be the material in the appendix which considers evaluation of nutritional status, commercial vitamin products (including a summary of costs, potency, and dosage), food hazards, and recipes and food suggestions for special conditions.

Beside the authors, there are 19 other contributors and collaborators. The work was done primarily at the University of Rochester School of Medicine and Dentistry. Of particular value to the practicing physician are the special diet instructions sheets, which also form a part of the appendix, and for which specific instructions for use are given.

ACCIDENTAL INJURIES. The Medicolegal Aspects of Workmen's Compensation and Public Liability. Henry H. Kessler. Cloth 803 pages, 202 engravings, $10.00. Lea & Febiger, 1941.

THIS is the second revised edition of this important work and is concerned mainly with the physician's responsibility in the interpretation of various medicolegal problems, based on an experience covering more than 100,000 cases examined at the New Jersey Rehabilitation Clinic and the New Jersey Workmen's Compensation Bureau, during the past 20 years.

The original arrangement of the material has been retained, the chapters remaining very much the same as to the original headings, medical aspects of workmen's compensation laws; schedules for rating disabil-

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ities; pathology of trauma; the end-results of trauma; general principles underlying disability; with the consideration of various anatomical portions of the body (as various chapter headings); injury and disease; accident neurosis; occupational disease; and rehabilitation of the physically handicapped.

The reviewer has always considered Kessler's "Accidental Injuries" as one of the standard works of reference for the industrial physician and surgeon. The second revised edition should find wide distribution because of the increasing responsibility of the physician and surgeon in industrial practice.

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INDUSTRIAL HEALTH and DISEASE

Outline of an Industrial Hygiene Program

Prepared by
DIVISION OF INDUSTRIAL HYGIENE,
National Institute of Health,
U. S. Public Health Service

THE suggestions made in this outline are based on careful studies and the practical experience of physicians, engineers, and other industrial hygienists over the past 25 years.

The plan is practical. Many of the largest and oldest industries in the United States adopted the measures recommended in this outline some years ago and have found them practical, beneficial, and economically sound. A good industrial hygiene program gets practical results by: (1) decreasing illness, injuries, labor turnover, spoilage of materials; (2) decreasing costs to the workers and the employer through reduction of wage losses, costs of illness, compensation costs, and insurance premiums; (3) improving health and efficiency of all personnel; and (4) promoting morale. In short, industrial hygiene will help you achieve maximum production in your plant.

The plan is flexible. This outline presents the basic structure of an *effective* industrial hygiene program. No attempt is made to define the precise form the program should take. This can be adjusted to the particular needs of the plant, taking account of such factors as type of operations, number of workers, and existing facilities.

In planning for improved health and efficiency among the men and women in your plant, three general considerations must be kept in mind:

1. Conditions in the working environment (the plant).
2. Conditions in the living environment (the home and community).
3. Personal conditions (the health status of the individual and his ability to participate in the program).

To make your industrial hygiene program effective, you need FOUR TYPES OF SERVICES:

1. Medical (physicians, dentists, nurses).
2. Engineering (industrial hygiene engineers, chemists).
3. Safety (safety engineers, first aid crews, shop safety committees).
4. Welfare (trained welfare workers, or personnel managers, union shop stewards, welfare committees, recreation committees, etc.).

All of these services and the people associated with them *work together* to keep the men and women in your plant healthy and on the job. Your plant may have other departments and other persons interested in the workers' health; if so, they should be brought into the program.

The Medical Service

PERSONNEL:

1. *Physicians:* One or more well-qualified physicians to provide *full-time service* in the plant. The chief physician is the medical director. *Small plants* (500 employees or less) may combine to employ one or more physicians or to secure the services of a group of physicians in the community on a rotating service plan.
2. *Nurses:* One or more full-time or part-time registered nurses who work under physician supervision.
3. *Other assistants,* such as dentists, technicians, clerks, whether on a part-time or full-time basis as determined by the medical director.

THE DISPENSARY:

Each plant should have a dispensary. Size, arrangement, and equipment will vary according to the plant, but the following conditions should be checked:

1. *Space:* Is there room enough for: (a) Emergency treatment of the injured and sick? (b) Privacy in making physical examinations? (c) Laboratory tests (blood tests, urinalysis, etc.)? (d) Records and supplies?
2. *Location:* Is the dispensary located in the *quietest* part of the establishment? Is it airy, light, and spotlessly clean? Are there chairs for patients waiting for the doctor or nurse?
3. *Beds:* For sick or injured workers?
4. *Stretchers:* Number and location depend on size of plant and type of operations; shop safety committees or first aid crews may be assigned charge of stretchers.
5. *Ambulance service,* either operated by the medical service or arranged for by it through outside hospitals.
6. *Equipment and supplies,* both medical and surgical, at all times well kept and sufficient for the plant's emergency needs.

DUTIES OF THE MEDICAL SERVICE:

1. Emergency medical care of all employees who are injured or become ill on the job, whatever the cause.
2. Continued treatment of employees suffering from occupational diseases or accidents.
3. Regular inspection of health and accident hazards in the shops, in cooperation with the safety department, engineering department, or other units, for the prevention of occupational disabilities.
4. Annual periodic examination of all employees and executives with a view to helping them improve and maintain health through the discovery and correction of ailments which they may not be aware of but which later may impair their health seriously.
5. Monthly physical examination, including laboratory tests, of workers who are exposed to poisonous materials on their jobs. Workers with unusual responsibilities, such as cranemen and hoistmen, should be examined every six months.
6. To maintain and analyze sickness records in order to know how, when, and where lost time due to disability occurs in the plant; to tabulate these records monthly, according to cause, nature, and duration of disabilities, and department or occupation of the patient.
7. To cooperate with the personnel department, employment office, or other responsible unit, in the proper job-placement of new workers, through the pre-placement examination (see below), and at the same time to give new workers the guidance mentioned in No. 4 above.
8. To make sure that employees returning to work after an absence due to illness or injury are capable of working safely and efficiently.
9. To promote and take part in a health education program for employees and their families.

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10. To make detailed plans for handling large numbers of seriously injured workers in the event of disaster, such as an explosion, fire, air raid, or other enemy action. Plans should include: (a) Transportation and first aid care of the injured. (b) Transferral of the seriously injured to hospitals where operating rooms, blood plasma and blood donors are available. (c) Coordination of these plans with the safety department, guards, police, road patrols, and fire departments. (See Medical Division Bulletin No. 4, U. S. Office of Civilian Defense, Washington, D. C.)

11. To cooperate with, and if desirable supervise, all other services in the plant which relate to the health of the workers, such as the food service, the welfare service, safety program, and recreation committees.

Engineering and Safety Service

THE Engineering and Safety Service is responsible for the detection and removal or control of environmental conditions in the plant which endanger health and safety. This requires a thorough and expert familiarity with:

1. Industrial engineering in general.
2. The sanitary, mechanical, and chemical causes of occupational accidents and diseases.
3. The engineering, chemical, or other physical means of preventing occupational accidents and diseases.
4. The processes, materials, machinery, and tools in *every operation* in the individual plant.

PERSONNEL:

1. *The industrial hygiene engineer* brings to his job the knowledge outlined in (1), (2), and (3) above, and he obtains the knowledge of (4) in a careful survey of the plant, backed up by a battery of tests already developed for this purpose. Many plants have no personnel with engineering background; many others have general engineers, chemical engineers, electrical engineers; many have trained safety engineers. But very few have industrial hygiene engineers with the combined "know-how" for the control of both occupational *diseases* and occupational *accidents*, including practical experience in the maintenance of production. Since this is true, and since it is seldom necessary for a plant to have the full-time services of an industrial hygiene engineer, it is suggested that plants utilize the services of governmental industrial hygiene bureaus (Federal, state, and local) to obtain impartial surveys and expert consultation. The engineers from these bureaus can make detailed surveys, work out the steps to be taken, and instruct plant engineers as to their application. ASSIGN ONE RESPONSIBLE PERSON, preferably an engineer, to work with the governmental industrial hygiene engineer.

2. *Safety engineers* are trained to identify conditions or practices that might result in accidental injuries to workers. They also conduct safety education programs and organize and direct safety committees.

3. *The Safety Committees.* There should be separate shop safety committees, under a central safety committee, in large plants. The plant physician should be a member of the central safety committee. Safety committees investigate accidents, make recommendations for accident prevention, formulate safety rules and regulations for the plant, and see that recommendations and rules are complied with.

4. Every plant should have at least one first aid or stretcher crew, composed of interested employees. The crew may be trained by the medical service, a trained safety engineer, or a first aid teacher with a Red Cross certificate. The first aid crew works under the supervision of the medical service and the safety committee.

ENGINEERING CONTROL:

In every modern industry, there are one or more conditions peculiar to the particular processes and operations which are potential threats to the health and safety of the workers. These are called occupational hazards; most of them can be eliminated or reduced to harmless limits by engineering methods. Further protection of the worker must sometimes be provided by supplying approved devices and clothing. The most important occupational hazards are:

1. Exposure to poisonous fumes, dust, and gases, which may result in serious acute or chronic illness.
2. Excessive noise.
3. Poor illumination (insufficient lights; glare).
4. Excessive heat, cold, or humidity.
5. Contact with chemicals and other substances which produce skin diseases.
6. Operations which may result in accidental injuries, as burns, cuts, crushing, wounds, etc.
7. Overcrowding in the workroom.
8. Poor ventilation in the workroom.
9. Poor housekeeping.

THE INDUSTRIAL HYGIENE SURVEY: Has your plant had a recent survey? If not, arrange for one to be made. It includes:

1. An appraisal of occupational hazards and unsafe practices.

Welfare Services

ONLY the largest industries have welfare departments for employees. You do not have to have trained welfare workers. The War Production Drive Committee can constitute itself a welfare service, drawing upon the interest, knowledge, and experience of anyone in the plant. Look for cooperation from the medical service, personnel department, employees, and the executive offices. The following problems should have your immediate attention:

Non-occupational Disability

NINE in every 10 absences because of sickness in your plant are the result of diseases and accidents occurring in the home and the community. A few large, progressive firms have already developed excellent services for the care of employees and their families, including medical, dental, surgical, nursing, and hospital care. On the whole, however, plant medical services have not yet broadened their scope to include this general medical care. The War Produc-

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tion Drive Committee should study the plans for general medical service now in effect in other establishments with a view to adopting a plan best suited to the needs of the workers. In isolated communities with inadequate medical facilities, it may be necessary to extend the scope of the plant's emergency medical service for general illnesses.

1. Enlist the services of the local physicians in your community in working out a satisfactory medical care program.

2. The medical department, and, if none, the committee, should be responsible for putting every worker in touch with a well-qualified physician whenever sickness occurs in his family.

3. Get in touch with your state or local health department and see that the following problems, for which the health department is responsible, are attended to promptly: (a) Protection of workers and their families against smallpox and typhoid fever (children should also be protected against diphtheria and whooping cough). (b) Housing: Are the workers' homes (1) overcrowded? (2) unscreened—especially in malaria districts? (3) insanitary? (c) Sewage disposal: (1) Is the central system of the community adequate to supply all workers' homes? (2) Are privies, outdoor toilets, trailer toilets, so constructed and maintained as to prevent pollution of the water supply? (d) Is there enough safe water for every worker's family? (e) Is the milk supply safe? Inspected by the health department? Pasteurized? Has your community adopted the standard milk ordinance of the U. S. Public Health Service? (f) Are hotels, rooming houses, and eating establishments of all types inspected by your health department? Operated according to the sanitary regulations of the state?

4. Make sure that there are enough physicians, nurses, and hospital beds in the community. In war areas where there are shortages of physicians, nurses, and hospitals, you can get help from the Federal government: (a) To obtain physicians and dentists write to the Procurement and Assignment Service, War Manpower Commission, Washington, D. C. (b) Use the services of your plant nurses or of the Visiting Nurses' Association in your community to get home care for the sick and injured.

The Pre-placement Examination

MODERN streamlined industries have adopted the pre-placement examination as an effective tool for placing *all* workers in jobs which they can do safely and efficiently without endangering themselves and their fellow-workers.

The objective of the pre-placement examination is to utilize every available worker. In no instance should it be interpreted as a means of rejection of handicapped persons. The old idea that an industrial worker must have the physical requirements of a 1-A or 1-B selectee must be thrown overboard in these critical times. Before this war is won, industry will have to depend largely upon older men, women, and physically handicapped younger men. Many industries with realistic personnel policies nowadays reject less than 1% of applicants.

You cannot adopt the pre-placement examination as a policy unless you have a plant medical service to perform the examinations professionally. The personnel and safety departments should work in cooperation with the medical service. Physician, placement manager, and safety engineer together determine the job in which each new worker can achieve peak production. The pre-placement examination includes:

1. Complete medical and occupational history.
2. Complete physical examination.
3. Test of eyesight.
4. Blood pressure reading.
5. Laboratory analysis of urine.
6. Blood count.
7. Blood test for syphilis.
8. X-ray picture of the chest to detect tuberculosis, especially of applicants whose physical examination suggests the possibility of tuberculosis.

One-eyed workers, and many applicants with handicaps such as hernia, high blood pressure, defective vision or hearing, and crippling conditions should be employed and placed by the physician and employment office at jobs they can do efficiently and safely. Applicants found infected

with syphilis should be employed, providing: (1) their disease is in a non-infectious stage; (2) they have no other disqualifying complications; and (3) they remain under treatment.

2. Occupational analysis, noting the hazardous materials or conditions to which *each worker* is exposed.

3. Scientific tests to determine whether a potential hazard is real.

4. Rating of the hazards and of the preventive measures already in operation.

5. Interpretation of the findings and recommendations for improvement.

6. Follow-up to make sure that recommended changes have accomplished the purpose for which they were made.

CONTROL METHODS:

GOOD HOUSEKEEPING is Rule 1-A for the control of occupational hazards. *This is everybody's job.* It means simply maintaining an orderly, workmanlike shop, indoors and out. Check the housekeeping in your plant. Make someone in each shop at each operation responsible. The safety committees may be the groups you will choose. Pay special attention to the following:

1. *Tools* kept in their assigned place.

2. *Workbenches* orderly.

3. *Materials* brought to operators and stacked in orderly fashion.

4. *Floors* kept free of trash, spilled oil, and other waste.

5. *Aisles,* stairways, halls kept free of obstructions.

6. *Containers* kept closed except when in actual use.

7. *Windows* clean.

8. *Lights* clean and bulbs renewed promptly.

9. *Safety* equipment kept in the assigned places, repaired and cleaned regularly.

10. *Plant exterior,* yards, storehouses, garages, etc., also well-kept.

11. *Dustless* cleaning of floors and equipment, such as wet sweeping, vacuum cleaning.

CONTROL OF POISONOUS FUMES, GASES, OR DUSTS is a job for experts. Industrial hygiene engineers must design specific measures for *each* hazardous operation. In general, these measures involve various types of ventilation; personal protective equipment and clothing for the workers; alterations in processes, materials used, or location of the operation.

See to it that all protective equipment in your plant is checked and regularly serviced by maintenance personnel. Work out a weekly schedule and see that it is followed.

SANITARY FACILITIES:

Check these facilities and their maintenance in your plant *today!* Serious communicable and occupational diseases can be spread through lack of decent sanitary facilities. Industrial hygiene experts can help you with final recommendations, but even if you do not have a medical service or engineering service now, you can start immediately.

1. *Lockers and dressing rooms:* (a) Large enough for all workers? men? women? both white and Negro workers where separate rooms are maintained? (b) Clean and airy? (c) Well maintained? broken lockers and furniture repaired?

2. *Wash rooms:* (a) Enough hand-washing basins? toilets? showers? for *all* workers? (b) Plenty of hot water? (c) Soap? (d) Towels? (e) Clean and aired at all times? (f) Inspected at frequent intervals *every day?* (g) Obstructions in the plumbing removed promptly? (h) Sanitary napkins and separate receptables for their disposal in women's wash rooms?

3. *Drinking fountains* conveniently located in the several shops? (No plant should tolerate use of common drinking cups.)

4. *Salt tablets* located near the drinking fountains in hot weather?

5. *Cafeteria or lunch room:* (a) Clean? (b) Dishes, etc., washed and rinsed in very hot water? (c) Refrigerators large enough to store food safely and kept spotlessly clean?

6. *Individual goggles,* dust masks, gloves, and other protective clothing provided for each worker requiring such articles? Protective clothing promptly repaired and kept clean?

7. *Daily* shower and complete change of clothes before leaving the plant for every worker in operations where poisonous substances are used?

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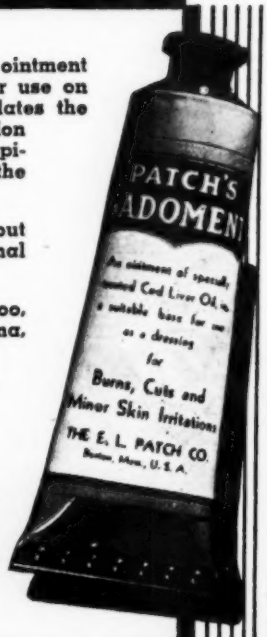

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THE SAFETY PROGRAM:

1. Every operation must be designed so *it can be done safely.*
2. All moving parts likely to injure the worker must be guarded.
3. In certain operations, workers need safety shoes, safety goggles, hard hats, special gloves, and other protective clothing.
4. Women workers should have hair nets and practical work clothes. The U. S. Women's Bureau has designed approved types.
5. *Daily inspections* of *all* operations by the safety engineer, to identify unsafe practices and conditions.
6. Frequent meetings of the safety committees.
7. Investigations of accidents to determine causes and prevent future accidents.
8. Safety meetings for all personnel at regular intervals.
9. Enforcement of safety regulations by foremen, with the full support of the safety committees, shops stewards, and other officials.
10. Training each new worker to do his job the safe way.

CONSULT YOUR STATE INDUSTRIAL HYGIENE SERVICE ON THESE ADDITIONAL PROBLEMS:

1. How to reduce noise.
2. How to reduce glare.
3. How to install good lighting.
4. Control of excessive heat and sudden temperature changes.
5. Design and allocation of space when contemplating additions to the plant.
6. Safety of new installations and processes.

Night Work and Shift Problems

TO MAINTAIN workers' health and thereby peak production, industries operating on the 24-hour basis must take special precautionary measures to minimize the effects of night work and the rotating shift. The U. S. Public Health Service makes these recommendations:

1. Workers changing over from day to night shift every two or three *weeks* find it difficult to adjust their eating and sleeping habits. In plants operating on a 24-hour schedule, shifts should not be rotated more often than every two or three *months.*
2. Each nursing shift should rotate at the same time as the workers' shift, so that the same nurses will always be acquainted with the workers they are treating.
3. Women with home responsibilities often try to do their housework during the day while working on night shifts. Chronic fatigue in short order is the result. In general, women workers who also have domestic duties should not be employed on the night shift.
4. A 60-hour week—on a 10-hour day, six-day week basis—may become necessary. Excessive increases in working hours lead to reduced efficiency during working hours, absenteeism and sickness. A 48-hour week—on an eight-hour day, six-day week basis—is preferable. Individual workers should have one day in every seven days reserved for rest and recreation; this does not preclude continuous operation of the factory.
5. Organized rest periods help maintain production at a high level. Five to 15-minute rest periods should be provided at the end of the first quarter, and again at the three-quarter mark of each shift. This is especially important in repetitive monotonous work or heavy manual labor. Milk, sandwiches, and fruit should be available during the rest periods.
6. A particularly high standard of lighting and ventilation is necessary in plants operating at night or under blackout conditions. Proper lighting reduces fatigue, improves morale, and prevents accidents due to poor light or glare.

Better Nutrition in the Plant

EVERY plant should have a cafeteria, canteen, or at least a luncheon for workers who bring lunch boxes.

The Cafeteria or Canteen:

1. Should be open to serve all shifts at all times.
2. Offer a special lunch at a reasonable cost, including a meat dish, a fruit or leafy vegetable, and milk or a milk dish.
3. Milk and other protective foods

should be offered at cost or below cost, to encourage workers to eat them rather than soft drinks, pastries, and other non-protective foods.

4. Bread made with enriched flour or whole wheat flour should be served.

5. Menus and preparation of food should be supervised by a nutritionist or a member of the medical service staff. Many state and local health departments have nutritionists for consultation. For further planning, write to the Industrial Education Section, Division of Nutrition, Federal Security Agency, Washington, D. C.

Food Carts: Food carts should tour all shops during the middle of the first and second halves of each shift, in order that workers may get milk, fruit, and nutritious sandwiches.

Supplementary Foods: Supplementary foods such as milk and vitamin preparations need not be provided routinely, except upon the advice of the plant physician.

Storage Space: Storage space for lunch boxes should be provided in a clean, cool, well-aired place.

Personal Problems

WORRY, nervous strain, and emotional difficulties have a direct effect upon health, efficiency, and production. Your committee should do all in its power to help workers solve their problems. Here are some suggestions:

1. If trained mental hygiene counselors are not available in your plant and cannot be obtained, appoint some responsible common-sense individual with a sincere, warm interest in people and their problems to work with your committee. Often all that is needed to iron out emotional difficulties is a good listener. The counselor, in general, should be an older person with rich life experience, and above all one who can be implicitly trusted to preserve the confidence of the worker.

2. The counselor should refer married women workers with special problems to the medical service or a private physician for advice on the proper spacing of children, as a means of protecting the health of the mother and her children.

3. Sponsor group insurance plans (hospital insurance, life insurance, sickness and accident benefit).

4. Establish credit unions to combat loan sharks.

5. Pregnant women workers should be given every consideration for continued employment commensurate with their physical capacity, under medical supervision. Make sure that every pregnant woman in your plant receives medical supervision and care throughout pregnancy including delivery, and the post-natal period. Secure the active cooperation of your local health department.

6. Plan for the day-time care of the young children of women workers.

7. Help solve transportation problems.

8. Increase opportunities for wholesome recreation in the plant and in the community. Cooperate with the Federal recreation program, Office of Defense Health and Welfare Services, Washington, D. C.

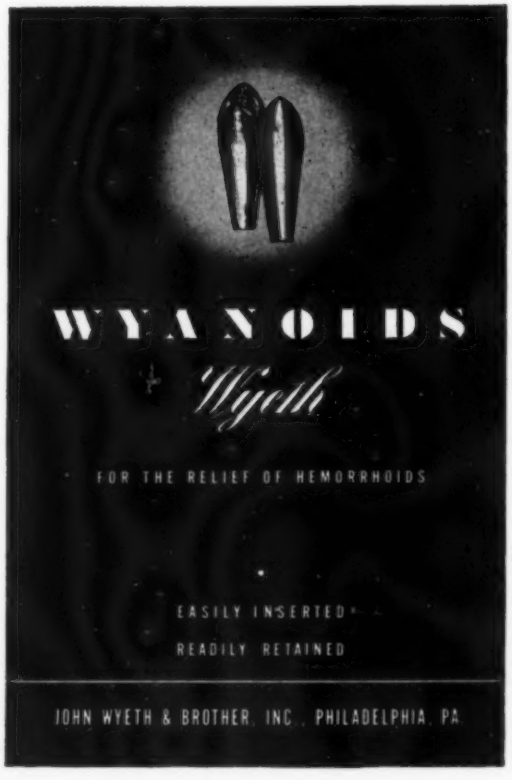
Health and Safety Education

ORGANIZE an overall program to give all employees in the plant the *information* and *training* they need to protect themselves and to cooperate intelligently with the health and welfare services.

2. The program should include instruction on: (a) Occupational hazards in their jobs and the means employed to control the hazards. (b) Safety practices in their particular jobs and in such overall hazards as fire, traffic accidents, etc. (c) Non-occupational diseases and the means to prevent sickness or to bring about speedy recovery. (d) Helpful personal practices, such as rest, sleep, posture, recreation, cleanliness, etc. (e) Nutrition—choice of foods, family budget, meal planning.

3. Training of all new workers, in the beginning, and retraining of old workers frequently, in the use and care of protective equipment and clothing.

4. Utilize talks, motion pictures, demonstrations, pamphlets, posters, plant and union periodicals to carry



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the story home; the U. S. Public Health Service has pamphlets, posters, motion pictures, photographs.

5. Arrange meetings either at the plant, the union hall, or the recreation center, where wives and other members of the family may also participate in health activities.

6. For guidance in developing and conducting the program, secure the cooperation of local physicians, nurses, dentists, health officers; local nutrition committees, Red Cross and other voluntary agencies; the medical, safety, and engineering services of your plant.

7. Have the medical service or a private physician instruct workers on the control and prevention of syphilis and gonorrhea.

8. See that every pre-placement and periodic physical examination of personnel is accompanied by careful interpretation of the findings to the worker.

DO NOT be discouraged if your plant has none of the services or programs suggested in this outline. Do not be discouraged if present services fall short. Get busy and do something about it. Health and welfare services such as are outlined here cannot be brought into being overnight. The important thing is to get started. Many conditions can be corrected in a day!

Use the services of your state industrial hygiene bureau. All industrial states now have such services ready to help you. The Division of Industrial Hygiene, National Institute of Health, U. S. Public Health Service, Bethesda, Maryland, has already asked your state industrial hygiene director to visit you. Do not hesitate to call upon him or upon the Public Health Service.

Additional copies of this outline may be procured from Division of Industrial Hygiene, National Institute of Health, U. S. Health Service, Bethesda, Maryland.

Outline of Procedure for Physicians in Industry

THE Council on Industrial Health has prepared this outline as a convenient reference and guide for physicians interested in industrial medical relationships. The purpose of medicine in industry is to promote the health and physical well-being of industrial employees.

These objectives should be accomplished by:

1. Prevention of disease or injury in industry by establishing proper medical supervision over industrial materials, processes, environments and workers.
2. Health conservation of workers through physical supervision and education.
3. Medical and surgical care to restore health and earning capacity as promptly as possible following industrial accident or disease.

An industrial physician is one who serves employed individuals or groups on authorization of a third party having a valid interest.

Duties of the Physician in Industry

PREVENTION.—The physician should acquaint himself by regular inspections with all materials and processes used in the working environment over which he has supervision, to the end that he may recommend appropriate protection of employees from conditions actually or potentially harmful.

Industrial Physical Examinations.—Preplacement physical examinations should be complete. They should be used only for the purpose of assigning work adjusted to the physical and temperamental fitness of applicants and to maintain safe and healthful employment for all employees. Subsequent physical examinations should be complete enough to provide positive health protection for all workers and to safeguard the public welfare. Repetition of such physical examinations must be determined by the physician in accordance with specific requirements. In the interest of completeness and uniformity, physical examination forms are recommended. Personal records of this character are confidential and should always be kept in the custody of the medical department. Access to these records should be granted only on request or consent of the examinee. The examining physician should acquaint the examinee with the results of all examinations or take steps to refer all conditions requiring correction to the physician of the worker's choice.

Health Education.—The plant physician should take advantage of all opportunities for beneficial instruction of the workmen in hygienic living both in and out of industry.

Medical and Surgical Care.—1. Treatment of Compensable Injuries and Diseases: The disabled worker should be free to choose his physician from all those licensed doctors of medicine competent to supply the required services except in situations provided for by chapter III, article VI, section 3 of the Principles of Medical Ethics, which reads as follows:

The phrase "free choice of physician," as applied to contract practice, is defined to mean that degree of freedom in choosing a physician which can be exercised under usual conditions of employment between patient and physician when no third party has a valid interest or intervenes. The interjection of a third party who has a valid interest or who intervenes does not per se cause a contract to be unethical. A "valid interest" is one where, by law or necessity, a third party is legally responsible either for the cost of care or for indemnity. "Intervention" is the voluntary assumption of partial or full financial responsibility for medical care. Intervention shall not proscribe endeavor by component or constituent medical societies to maintain high quality of service rendered by members serving under approved sickness service agreements between such societies and governmental boards or bureaus and approved by the respective societies.

2. Treatment of Non-compensable Injuries and Diseases: The treatment of injuries or diseases not industrially induced is the function of private medical practice. The physician in his industrial relationships should abstain from such services except in:

A. Minor ailments. The physician in industry may treat minor physical disorders which temporarily interfere with an employee's comfort or ability to complete a shift, and for the relief of which he may need immediate medical attention.

B. First aid for urgent sickness. The physician in industry should employ such measures as the emergency dictates in all cases of urgent sickness occurring during working hours on the working premises, until such time as prompt notification of the family physician relieves him of further responsibility.

C. Rehabilitation after sickness and injury. The physician in industry can properly assume responsibility for those phases of rehabilitation after disability industrially induced or otherwise, which progress best under controlled working conditions.

General Relationships

THE EMPLOYER.—Adequate industrial medical supervision requires full or part time service of doctors of medicine, depending on size of plant, location, prevalence of dangerous health exposures and other considerations. In every case a physician's relation to industry is improved if he does not solicit the appointment. Written contracts between a physician and an employer are usually unnecessary. If a contract seems desirable, a copy should be filed with the local county medical society.

The Employee.—Adequate industrial health conservation depends on cooperation from workmen. They must therefore receive the same courtesy and professional honesty as do private patients. Physicians who serve in industry should not devote time or facilities properly belonging to industrial medical administration to diagnose or treat dependents of employees or members of plant administrative or supervisory staffs, except in the absence of accessible independent private facilities.

Industrial Nurses and Non-professional Assistants.—Industrial physicians should be responsible for the proper instruction and subsequent activities of nurses and other assistants. Their functions should be described in clear and comprehensive written orders posted in the medical department. There should be no delegation of services requiring expert medical attention.

Consultants.—Assistance should be asked of consultants in industrial medicine, surgery or hygiene or in the clinical specialties whenever the interests of the workmen demand it. In the control of working environment the same consulting arrangements should be entered into with industrial hygienists and safety engineers.

Official Health Agencies.—The physician in industry should consider himself as a deputy health officer in practice if not in fact. Assistance from bureaus of industrial hygiene in many state and local governments to control healthful working conditions is available. In return the physician in industry should cooperate by accumulating and reporting compilations of dependable data on the relation of occupation to morbidity and mortality.

Workmen's Compensation and Re-

J.A.M.A., March 14, 1942.

habilitation Agencies.—Medical and surgical management in every case of industrial injury or disease should aim to restore the disabled worker to his former earning power and occupation as completely as possible and without unnecessary delay. Concise, dependable medical reports promptly submitted to those agencies entitled to them are a part of this obligation. In the same way, equitable administration of workmen's compensation rests on medical testimony which adheres closely to reasonable scientific deductions regarding the injury or possible sequelae, to the end that every deserving claim may receive full indemnity under the statutes.

Medical Organizations. — Physicians in industry should participate in the organizational and educational activities of general and special medical societies and of hospitals to the end that the objectives and contributions of industrial health may be recognized and available to the medical profession at large.

Assistance in the organization and conduct of industrial medical services is available from committees on industrial health in many state and county medical societies and from committees representing the specialty groups which make up the Scientific Assembly of the American Medical Association. Specific inquiries on all matters relating to industrial health may be directed to the Council on Industrial Health, American Medical Association, 535 North Dearborn Street, Chicago.

J.A.M.A.'s "Current Comment," on the foregoing (March 14, 1942): "Elsewhere in this issue is reproduced a series of recommendations prepared by the Council on Industrial Health and approved by the Judicial Council, intended to help physicians who serve in industry. The outline describes the objectives of industrial health, the functions of physicians in industry and the new relationships which represent the altered professional problems encountered in medical supervision over employed groups. This statement clearly implies that medical service in industry can operate efficiently, ethically and scientifically for the best interests of the worker, the employer, official agencies, the medical profession and the community. The industrial physician has obligations to the medical profession at large; the private practitioner is obligated to recognize professional competence in supervising the care of work forces. Exploitation of the industrial disability to the patient by unnecessarily delaying his return to work is just as reprehensible as the use of industrial influence to enhance individual practice. With this guide a physician in community practice should facilitate expansion of his services to meet the requirements of small and medium-sized plants for preventive medicine, surgery and hygiene. In such establishments the application of professional skill and interest is much needed."

Sound Slide Films
—On Industrial Health—

THE announcement of the release of four new sound slide films designed to promote better health among industrial workers is most timely; the subject being so extremely important in the war production picture. According to recent statistics 25% of the industrial worker's time spent in his occupation accounts for only 6% of his total annual disablement; the other 94% is caused chiefly by non-industrial illness.

Recent reports indicate that sick and injured war production workers lose approximately 6,000,000 work days each month. As a consequence, material which effectively aids the medical personnel and welfare departments of an industrial plant in creating a better understanding of the need for health, and how to maintain it, can be a most desirable addition to any employee welfare program.

These new sound slide films bring out four principal subjects which have to do with the average worker's health. The titles are indicative:

The first film *"Take Care of Yourself;"* was released several months ago and has been presented before a large number of men engaged in inindustrial health activities. The comments of several of these men are given later. This film introduces the very ordinary subject of coming to work with a "hang-over" caused by lack of sleep, over-eating, or excessive use of alcoholic stimulants. The theme of the presentation is a discussion between the plant physician, the plant nurse and a worker who has come to the dispensary for relief from a headache. It points out a series of very common truths and their applications as to food, sleep, mental attitude, exercise and recreation, etc., to the man who is engaged in the important job of turning out the tools for war.

The second film is entitled *"The Cold Bug."* This one points out the importance not only of taking care of a common cold, but also of ways and means of preventing colds and the more serious health complications which may ensue. The subject is introduced by the use of a cartoon character "The Cold Bug," and brings in the plant physician as the adviser in the case. The "hero," if this character may be called a hero, is a big, brawny he-man, who exhibits the characteristic disregard for minor health ailments, in the belief that he has the physical prowess to throw them off. Obviously, after he has come through an attack of pneumonia he is very much interested in the physician's advice—which is presented in an interesting and most informative manner, aided and abetted by "lead-ins" from "The Cold Bug."

The third film is on food, with the title "Food Keeps You Fit." This presents the importance of proper foods, with particular emphasis on the fact that because of the continuous operation of plants there is not only a change in the living habits and hours of work, but likewise a comparable change in the normal digestive and nutritional functions of the body. The company physician is again the adviser, and the discussion emphasizes the need for proper foods, and presents the proper advice for those whose living habits have been changed because of the needs of war production.

The fourth film is on morale, entitled *"Stay On The Beam."* While the opening introduces certain historical and patriotic angles, the key to the theme of morale, as it is expressed, is in the characters of such individuals as "Walter-the-Worrier," "Defeatest-Dan," "Harry-the-Hurrier," "Egotist-Ed" and "Belligerent-Bert," and then of course the leading character "Worker-Will." Each of these characters represents an individual who will be found in most any group of employees, and around this group, using the company physician as the principal voice, there has been built a film which emphasizes the many important points of morale that can so seriously affect lives and working habits of the men and women engaged in war production, as well as production itself. This film is not designed to stir workers to greater productivity, except that its inspirational tone will give many an entirely different outlook. This, of course, will react to their personal benefit, as well as that of their employer.

These four films have been evolved with the collaboration of C. O. SAPPINGTON, M.D., DR. P. H., Industrial Health Consultant, who has long been an ardent advocate of visual education in industrial work, particularly the visual education which provides for better health and welfare. They were produced by Commercial Films Inc., 1800 E. 30th St., Cleveland, Ohio, and may be obtained from this company. The cost of the four, when purchased as a group, is $50.00. They can be projected on any standard slide film projector and the record run on any slow-playing (33⅓ r.p.m.) phonograph or record player capable of taking a 16-inch record.

After the first film of this series was produced, copies were sent to a considerable number of large industrial companies for an expression of opinion. It was pointed out that, according to Dr. Victor G. Heiser, 90% of the lost time in industry is due to ordinary illness. Individuals were asked to consider the film from that angle and comment. Their comments, from a number of the large industrial establishments follow:

"The film made a good impression on the audiences."—power company.

"This picture proved very satisfactory, and our men showed a great deal of interest. We find that the personal appeal in any film is quite effective."—aluminum company.

"It is a very effective piece of educational material. Those employees who have seen it speak very highly of its value."—power company.

"Those who have seen it have commented very favorably upon it and feel

that it is well worth while as an educational medium."—optical company.

"'Take Care of Yourself' has proved to be most interesting and instructive to our men. I believe I can safely say that this is one of the best we have had so far."—steel company.

"The film is a good common sense presentation of the subject and has been well received."—power company.

"We have had many favorable comments regarding the film, 'Take Care of Yourself.' The film is a practical and realistic one."—industrial nurse.

"We thought you would be interested to know how it was received. Our reports indicate that the reaction of the employees was very favorable and they agreed that it carried a timely message."—power company.

"We found it necessary to purchase two copies of 'Take Care of Yourself.' We have been receiving nothing but words of praise from our various operations where the slide films are being used."—glass company.

"It is excellent material and we are mighty glad to have it."—cereal mills.

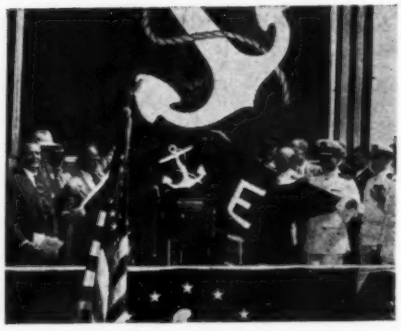
"You may be interested in knowing that we have shown the film 'Take Care of Yourself' to several of our group safety meetings totaling about 190 employees so far. The reaction has been favorable and the employees seem to like it."—oil company.

"It has been demonstrated to a group of employees of this office as a part of their instruction in a first aid course. The reaction of this group was very good, and it is thought that the film will be very valuable in health education among our employees."—engineer office.

IT IS expected, with these first four films available, that additional films covering such subjects as the teeth, nervous fatigue, indigestion, cleanliness, recreation and exercise, hygiene of the body openings, etc., will follow.

Commercial Films Inc., is one of the pioneer developers of sound slide films for industrial training and industrial relations programs. It has produced films of this type for leading commercial and industrial organizations and groups, including National Safety Council. In developing this series, with the cooperation of DR. SAPPINGTON, it has approached a subject in industrial training which has been almost completely neglected, at least from the standpoint of visual education. These four films run approximately 15 minutes each and can form the basis for a continuous health education program throughout a plant by using them in a single showing, or running them in one series when it seems desirable to call together larger groups for a more comprehensive discussion of health problems.

THE FIRST All Navy E ever awarded to a pharmaceutical manufacturing company was presented on June 12 to John Wyeth & Brother, Inc., of Philadelphia; it was one of two made at the recommendation of the Bureau of Medicine and Surgery of the Navy, the other award having been made to Johnson & Johnson, of New Brunswick, New Jersey, manufacturers of medical supplies. The latter company received the First Navy "E" burgee and badges awarded in the surgical dressings field. These were presented to 3,000 Johnson & Johnson employees by Rear Admiral Ross T. McIntire, Surgeon-General of the Navy and physician to the White House, in an



Rear Admiral Ross T. McIntire and W. C. Nicholas (left), Vice-President of Johnson & Johnson, display the Navy "E" burgee

impressive and colorful ceremony on the grounds of the company's main plant at New Brunswick.

MANUFACTURERS

MER-KIL CHEMICAL Products Company, Chicago, offers Mer-Kil PC 15 for the effective and economical disinfection of respirators, rubber goods, goggles, etc.; a mercury and iodine combination that is stable, non-toxic and non-irritating to healthy tissues.

WM. S. MERRELL CO., Cincinnati, announce a new germicidal compound, Ceepryn, for pre-operative skin sterilization, disinfection and irrigation of wounds and sinuses, and for general all-around use. Its penetrating and detergent properties make it especially valuable for disinfecting and cleansing folds of the mucosa and crevices and pores of tissue and skin. CEEPRYN is a quartenary ammonium salt, known chemically as cetyl-pyridinium chloride.

NAUSEA and vomiting have been the most frequent side-effects following administration of Stilbestrol (diethylstilbestrol). A recent report (*J.A.M.A., 119:400*, May 30, 1942) points out that there is a definite relation between these symptoms and the nausea and vomiting of early pregnancy. If one will merely take the time to ask the prospective patient if she had nausea and vomiting with a previous pregnancy, it would serve as a warning to give not over 0.25 mg. daily as an initial dose. Desenitization may be accomplished by giving 0.1 mg. tablets once daily for five days, then increasing the dose gradually until the therapeutic level is reached. Diethylstilbestrol, Lilly (formerly known as Stilbestrol) is available in 0.1 mg. tablets, as well as in larger doses, for oral administration.

THE sea was running in long swells and we began to get seasick. We were sick all the next three days and two nights. The only thing we could keep on our stomachs the whole time was malted milk tablets." So reported Marine Gordon McFeely, who spent more than 40 hours adrift in a raft after the recent battle of Midway. He and his pilot were eventually rescued by a PBY plane. The government has purchased from the Horlick's Malted Milk Corporation 150,000,000 malted milk tablets for inclusion in army, navy, coast guard and maritime commission rations.

MINE SAFETY Appliances Company's new eight-page Defense Bulletin, covering the complete range of safety equipment needed in wartime conditions, features a suggested grouping of essential items at strategic locations in plant or municipal buildings; includes descriptions of gas masks, helmets, gas detectors, inhalators, asbestos suits, goggles, respirators, first aid kits, Foille for burns, stretchers, splints and fire blankets; and introduces three new special items: M.S.A. Steel Helmet, M.S.A. Defense First Aid Belt, and M.S.A. Combination Traction Splint. Copies on request.

LEDERLE Laboratories, Inc., New York, have a 64-page booklet, "Abstracts Selected from Published Articles on Sulfadiazine." Every article on the subject appearing up to December 1, 1941, was examined. Those with only minor evidence, as well as those which overlapped or reworked prior authorities, were eliminated. The result is a terse, authoritative condensation and review of material on sulfadiazine, arranged topically for convenient reference, and with bibliographies for those wishing to study the articles in full. Copy on request.

WEST DISINFECTING Company announces West Sulpho Hand Cleaner. This has a base of sulphonated castor oil, combined with special wetting agents and other materials, so as to be capable of removing dirt and grime without, at the same time, defatting the skin. It is especially designed for those manufacturing processes which tend to dry out the skin. Samples on request.

IODINE and mercurochrome capsules are now part of each service man's first-aid equipment. Sealed glass ampules containing the drugs are protected by transparent plastic tubes of slightly larger diameter which are sealed by tightly compressed absorbent cotton. The glass tube can be broken by a slight squeeze of the flexible Lumarith between thumb and forefinger without danger to finger. This saturates the cotton for application to the wound. Thus, iodine and mercurochrome which in alcoholic solution deteriorate rapidly when exposed to air, are kept fresh and potent. Danger of spilling, or broken glass bottles, and applicators, and of contamination is obviated. These swabs are also used by utility linemen and other industrial first aiders. The Lumarith tubing is spiral wound by Stone Straw Company, of Washington, D. C., for Johnson & Johnson. Each capsule is packed in a fiber sleeve on which are printed the ingredients and antidote.

RELIEF from PAIN

will salvage many a useful working hour

WHEN you relieve a minor painful condition such as a headache, dysmenorrhea or neuralgia, you contribute valuable time to the defense effort by increasing physical and mental efficiency.

Without opiates, effective pain relief can be accomplished by the analgesic-antispasmodic potency of

TABLETS ASPIROCAL COMP.

Acid Acetylsalicylic.....4 gr.
Calcium Gluconate.....2 gr.
Butisol (5-ethyl-5-secondary butyl barbituric acid "McNeil").....⅓ gr.

By established synergistic effect, the therapeutic activity of the contained medication is increased.

More Women in Industry. Ever-increasing numbers of women are doing nerve-trying work, requiring skill and patience. Periodically a large number of these women will appreciate the non-narcotic relief afforded by Tablets Aspirocal Comp. The value of this compound in dysmenorrhea has been proved clinically in a large series of cases.

Indications: Pain associated with—
Dysmenorrhea, Headache, Febrile Conditions, Neuralgia, Rheumatic and Arthritic Conditions.

How Supplied: Bottles of 100, 500 and 1000.

A trial supply will be forwarded to any physician on request.

McNeil Laboratories
Incorporated
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WHEN THE EPITHELIUM IS DENUDED

Long-standing diabetic ulcer, treated intermittently by approved methods without success.

Same lesion, almost entirely healed, after 10 weeks' local treatment with White's Vitamin A & D Ointment.

Whether the condition under treatment is a slow-healing burn, an indolent ulcer, or a traumatic wound, you can hasten repair with

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VITAMIN A & D OINTMENT

Clinical work has shown that dressings of White's Vitamin A & D Ointment, changed infrequently, lead to remarkably rapid healing, with minimal scarring and infection.

Healthy granulation, early epithelization and prompt repair are afforded by this effective form of medication.

White's Vitamin A & D Ointment possesses a pleasant odor, does not stain tissues and will keep indefinitely at ordinary temperatures without becoming rancid.

We will be glad to answer any inquiries regarding the use of this product in cutaneous lesions. Write White Laboratories, Inc., 113 North 13th Street, Newark, N. J.